

JANUARY

1947

CHEMICAL PREVIEW

In this issue

146 Articles Covering

NEW SOLUTIONS of
PLANT PROBLEMS

DEVELOPMENTS in
PRODUCTION MATERIALS

PROCESS INSTRUMENTS
and CONTROLS

PRACTICAL IDEAS
ADAPTABLE to PROCESSING
MACHINERY and EQUIPMENT
DEVELOPMENTS

Extraction process has solvent loss of
1/10 per cent; uses physical means to
separate vegetable, animal and ma-
rine oils into components.

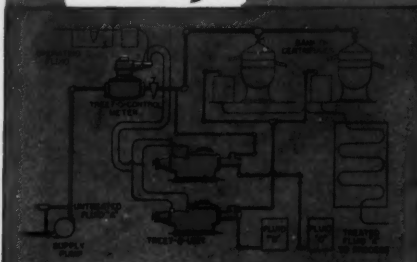


WRITE YOUR OWN PRESCRIPTION

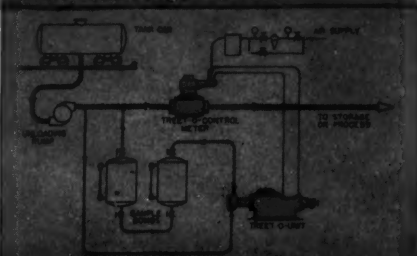
Rx

FOR

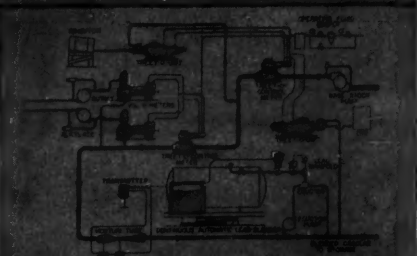
Continuous PROCESSING EQUIPMENT



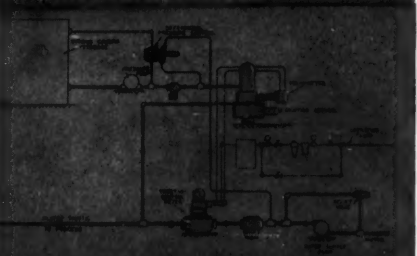
Flow Responsive TREATING



Flow Responsive SAMPLING



Flow Responsive BLENDING



Flow Responsive DILUTING



HERE, in one attractive, novel bulletin is all the information an engineer needs to specify automatic, flow responsive proportioning equipment for today's continuous processes. %Proportioneers% Bulletin 1200 shows how to combine fluid meters and proportioning pumps so that your process will be continuous with all units synchronized and controlled from a single source. It illustrates proven methods of treating, sampling, blending and diluting and by ingenious charts, diagrams and tables enables the engineer himself to select and size the equipment required. Get this new bulletin and write your own prescription.

Ask for Bulletin 1200

% PROPORTIONEERS, INC. %

WRITE TO %PROPORTIONEERS, INC.%, 41 CODDING STREET, PROVIDENCE 1, RHODE ISLAND

"That's Interesting"

Fiberglas Cloth for Surgical Packs

Use of surgical packs made of Fiberglas cloth instead of the conventional surgical gauze can reduce the danger of post operative adhesions.

Electrocuting Trees

An electric method for the automatic felling of trees — in which a hot wire is tightened around the trunk has recently been developed. (Electric Manufacturers Public Information Center, New York 17, N. Y.)

Wrinkles Eliminated

Two species of sheep with unwrinkled skins have recently been bred by the U. S. Department of Agriculture. One of the advantages is that leather tanners have to oil and press wrinkled skins to make them entirely suitable for use.

World's Largest Fork Truck

The world's largest fork truck is a fifteen-ton capacity unit designed for service in steel mills. It is used with forks and also with an interchangeable steel ram for handling steel coils. A thirty ton truck is now in the drawing board stage and is to be made whenever steel mill operations call for a unit of such size. (Automatic Transportation Co., Chicago.)

Aluminum Shingles

Aluminum shingles are now being manufactured in "English Slate" design in natural aluminum and also in green, red and blue-black. (Southern States Iron & Roofing Co., Birmingham, Ala.)

"Don't Open Sesame!"

Sesame, the tiny seed familiar in the magic phrase, "Open, Sesame" which gave Ali Baba access to the cave of the forty thieves is being grown on a large scale in Kansas and other states. The seeds are more than 50% oil — more than any of our standard seed crops. The meal left after extraction of the oil has the same feeding value as linseed meal. The seeds must be harvested by the traditional hand method as they are so delicate that they are easily shattered. Kansas State College scientists are striving to perfect a machine that will harvest the seeds without damage which would "open" the seed. (From "Farm Journal Letter").

Cashews Fortify Plastics

Plastics in which cashew nut shell liquid is one of the ingredients are among the most highly resistant to heat and chemicals.

(Continued on next page)

For more information on product at left, specify CP 1 . . . see information request blank between pages 2-3.

"That's Interesting"

Twenty-four Potato Starch Factories; One Potato Alcohol Distillery Now In Aroostook County, Me.

Modernization of potato starch factories in Maine has quadrupled the production capacity of twelve years ago, the state's output being sufficient to displace imports from Europe. Developments in potato alcohol production have contributed to interest in the composition of potatoes and in their starch content. Starch content of potatoes going into starch and alcohol production has ranged from 5.6% for a very poor lot to 15.4%, with averages of from 10.3% to 13.3% for the past eight years. There are now twenty-four starch factories and one potato alcohol distillery in Aroostook County, Maine. These operate from September to June on Maine potatoes and surplus crops from other states. With the advent of the corn starch industry making a finer, more uniform and lower cost starch, the potato starch industry, widely scattered throughout the northeast quarter of the country, practically died out except for Aroostook County. With grain allocations and limited supplies of black strap molasses, potato alcohol became of greater interest for blending and pharmaceutical use. Between 1940 and 1945 a few potato starch factories and a potato alcohol distillery were built in Idaho. (Summarized from a paper by Dr. Charles A. Brautlecht — University of Maine.)

How Germans Used Hydrogen Peroxide for Propulsion Described to ASME

The Germans used a concentration of 80 to 85 per cent for twenty-six different war weapons and on an experimental basis for 48 others. They used it to launch V-1 bombs, to drive fuel pumps in the V-2 bombs, and to drive torpedoes, airplanes and submarines. The performance of the airplane is characterized as astounding, the thrust from the rocket engine corresponding to that of a 3700 HP conventional-type engine though it weighed 250 pounds. The hydrogen driven torpedoes were practically wakeless and superior to other types in performance.

(Companies in this country are now concentrating hydrogen peroxide to a higher concentration than the Germans ever did and to a greater degree of purity.)

It was sometimes used by the Germans as a monofuel or primary fuel, that is using only the heat of dissociation of the H_2O_2 into H_2O plus O_2 . It was, however, used more often as a secondary fuel, that is all or nearly all of the free oxygen was burned with a fuel such as decalene, similar to Diesel oil, or methyl alcohol. The reaction, would, in some applications, take place all in one step by the use of a liquid catalyst and fuel combined. The mixture the Germans used was Hydrazine hydrate and methyl alcohol. (Summarized from address by Captain Logan McKee, USN, Chief of Design Branch — Bureau of Ships before the ASME.)

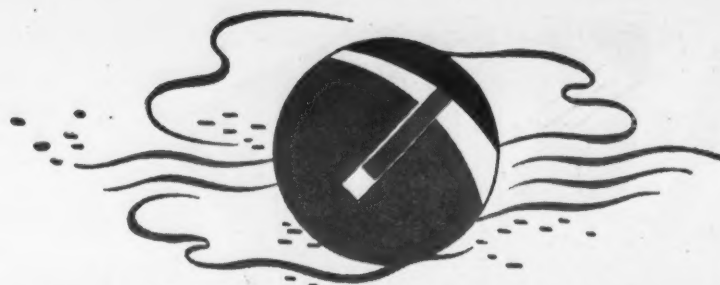
World's Largest Delayed Coking Unit

The world's largest Delayed Coking unit has recently been placed in operation in Torrance, California, at the refinery of General Petroleum Corp., affiliate of Socony-Vacuum. The unit was designed and erected by M. W. Kellogg Co. to prepare gas oil from a heavy California crude. An important product of the unit's operation is a high grade petroleum coke, amounting to over 200,000 tons per year. This product is sold as a raw material for manufacture of carbon electrodes used in the aluminum and other electrometallurgical industries.

In operation, reduced crude is heated to approximately 900 degrees F. and then discharged into drums to coke by its contained heat. Although both liquid and vapor enter, only vapor leaves the coke drums, all liquid being converted into gas or coke. The vapors from the coke drums are separated in a fractionating tower into gas, gasoline and oil.

The coke drums are the largest and tallest in the world, standing 97 feet, two inches above grade. Overall height of the unit is 197 feet as tall as a twenty story building. A feature of the unit is the method of removing coke from the drums. Water jets at the high pressure of 1500 pounds per square inch safely and speedily slide coke from the drums and wash it to a main pit from which a specially designed pump transports the cleaned and sized coke to storage.

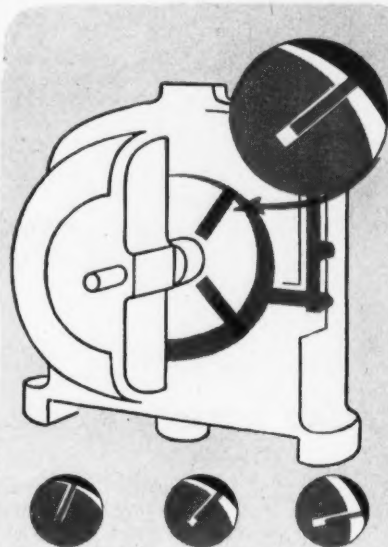
(Continued on third cover)



The LITTLE PARTS That ARE NOT THERE

... in Gast Vacuum Pumps (to 28 Ins.), Compressors (to 30 lbs.) and Air Motors (to 1 h.p.)

Here is mechanical design that does not go around the block in order to step next-door. In Gast design the very conditions inherent in operation are themselves utilized in accomplishing the desired result—all without recourse to springs, valves, guides, rings, supports or other means-to-assist-means. Can anybody imagine anything simpler than a one-piece slotted rotor with one-piece vanes that slide outward against the cylinder walls—and seat themselves perfectly, and take up their own insignificant wear—because centrifugal force won't let them do anything else?

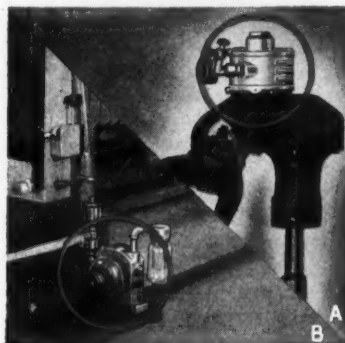


Vaness: Self-seating... self-adjusting... springless. Centrifugal force holds them against cylinder wall. They "work without works"... Continuous, non-pulsating flow... More air per

pound of weight, more air per horsepower... Forced-air cooling: long life, oil economy, no hot-oil odor... Automatic shaft seal: no packing, no leaking, no adjusting.

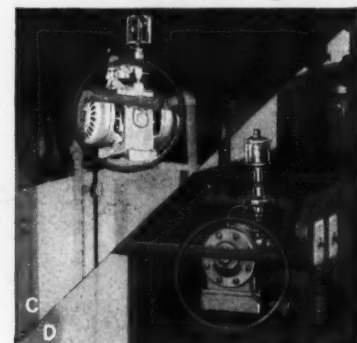
That's Gast design. That's why Gasts deliver more air per pound and per horsepower. That's why Gasts work so dependably with so little attention. That's why Gast manufacturing can be the very finest, despite an attractive first cost. And that's why you should avail yourself of Gast experience, in applying Gasts wherever air is used or can be used to better advantage, to your greater profit and your customers' greater satisfaction.

GAST MFG. CORP.
101 Hinkley Street,
Benton Harbor, Michigan



A—On a "Lightnin'" Mixer.

B—On a Litho Equip. & Supp. Co. Camera.



C—On Aircraft Test Equipment.

D—On a Houde Sump Filter.

GAST

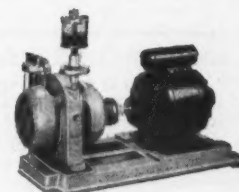
ROTARY

VACUUM PUMPS • AIR COMPRESSORS • AIR MOTORS

ENGINEERING TEST OFFER—So You Can SEE IF YOU'RE MISSING SOMETHING! Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, without cost or obligation, the recommended unit will be shipped to you for your performance tests.

GET THIS IDEA-CATALOG

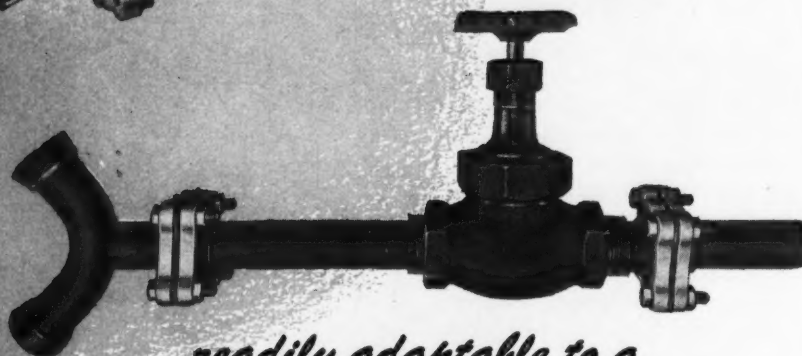
It not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!



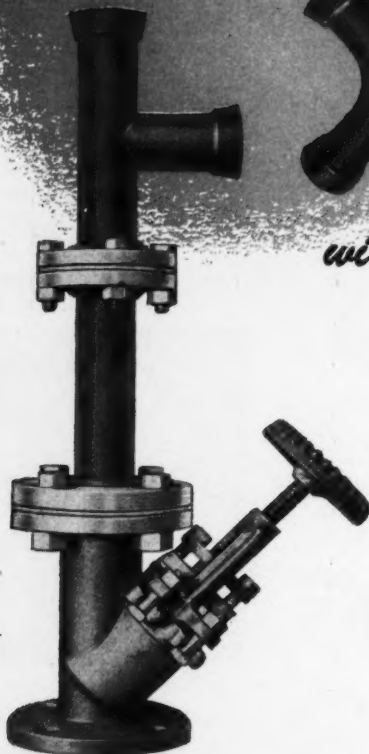
When inquiring specify CP 2... see information request blank, pgs. 2-3

TRI-CLOVER

Flanged Type CONICAL END FITTINGS



*...readily adaptable to a
wide variety of other fitting types*



Illustrations demonstrate the adaptability of Tri-Clover conical end fittings to both flanged and screwed type iron pipe size fittings and valves. The aluminum flanged coupling, shown in the "exploded" view, above, is the key to easy, fast installation of these new fittings. It provides a simple, leak-tight union, for working pressures up to 250 lbs. per sq. in.

STAINLESS STEEL WELDING FITTINGS

Available in a complete line, in sizes from 1" O.D. through 18" O.D., fabricated from stainless steel type 304, 316 or 347.

No mixed joints—sweep ell design—no internal threads or pockets—joints are flush.

The installation of new light weight corrosion-resistant conveying lines is now greatly simplified, through the use of the new Tri-Clover stainless steel conical end fittings, together with light gauge stainless steel tubing. Existing corrosion-resistant fittings and valves need not be discarded... for, by means of simple adapters, all Tri-Clover conical end fittings are readily adaptable to a wide variety of other fitting and valve types, including IPS fittings (screwed or flanged type), conical glass tubing, welding fittings and Victaulic joints.

These new fittings are fabricated from type 316 stainless steel, in a complete line, including ells, tees, crosses, return bends, "Y's", laterals and ferrules, for use with commercial tolerance stainless steel tubing having outside diameters of 1, 1½, 2, 2½, 3 and 4 inches.

Write for details about the advantages offered through Tri-Clover Industrial Fittings and light gauge tubing.



TRI-ALLOY AND STAINLESS STEEL
SANITARY FITTINGS, VALVES,
PUMPS, TUBING, SPECIALTIES

FABRICATED STAINLESS STEEL
INDUSTRIAL FITTINGS AND
INDUSTRIAL PUMPS

THE Complete LINE

CHEMICAL PREVIEW

Edited for Production and Laboratory
Men in the Chemical Process Industries

VOL. 10

JANUARY, 1947

NO. 1

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CHEMICAL PREVIEW

When inquiring specify CP 3 . . . see information request blank, pgs. 2-3

An Announcement

Chemical Preview now 12 Issues Yearly

Beginning with this issue, CHEMICAL PREVIEW will be published monthly instead of every other month as it has been in the past. This change in frequency of issue will enable CHEMICAL PREVIEW to speed up its service of furnishing live, timely news of new ideas, new solutions, new materials, etc. to the chemical processing industries.

The Cover

Pilot plant illustrated on front cover employs a solvent extraction method of treating vegetable oils, fish oils, animal fats, waxes and fatty substances in general. An article on this development appears on page 18.

How To Get More Product Information

To make it convenient for readers to locate information in CHEMICAL PREVIEW there is . . . on page 97 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 98 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 2 and 3.

How To Get This Magazine Regularly

The circulation of CHEMICAL PREVIEW is restricted to a selected list of individuals who are actively engaged, in responsible capacities, in chemical processing plants — chemists, engineers, production and management executives. Subscriptions are NOT SOLD. There is no charge or obligation for the service.

If you would like to receive the magazine regularly, send your request on your company letterhead to the publishers, or use request form inserted next to the back cover. To have your request receive prompt consideration give your title, company's name and main product of your firm. Request should be sent to Circulation Director, CHEMICAL PREVIEW, 737 North Michigan Avenue, Chicago 11, Illinois.

Have You a New Product?

If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical process manufacturing . . . send information regarding it to our editors.

If it meets their requirements, they will introduce it to the chemical processing industries through the editorial pages of CHEMICAL PREVIEW. More than 25,000 copies of this publication are effectively distributed through the chemical processing industries.

This service costs you nothing and there is no obligation. Write — The Editors, CHEMICAL PREVIEW, 737 North Michigan Avenue, Chicago 11, Illinois.

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Job,
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AND RUGGEDLY
BUILT TO MEET
THE REQUIREMENTS
OF THE JOB

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DOUBLE-CONE
BLENDERS for
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dry powders, crystals,
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THE "GENERAL" a liquid mixer designed
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size range from 1/2
h.p. up.



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bulletin of PORTER
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Process Equipment.

H. K. PORTER COMPANY, Inc.

PITTSBURGH 22, PENNSYLVANIA
District Offices in Principal Cities

Organic Glucosates Prevent Corrosion in Piping of Paper Drying Machines

New Solutions

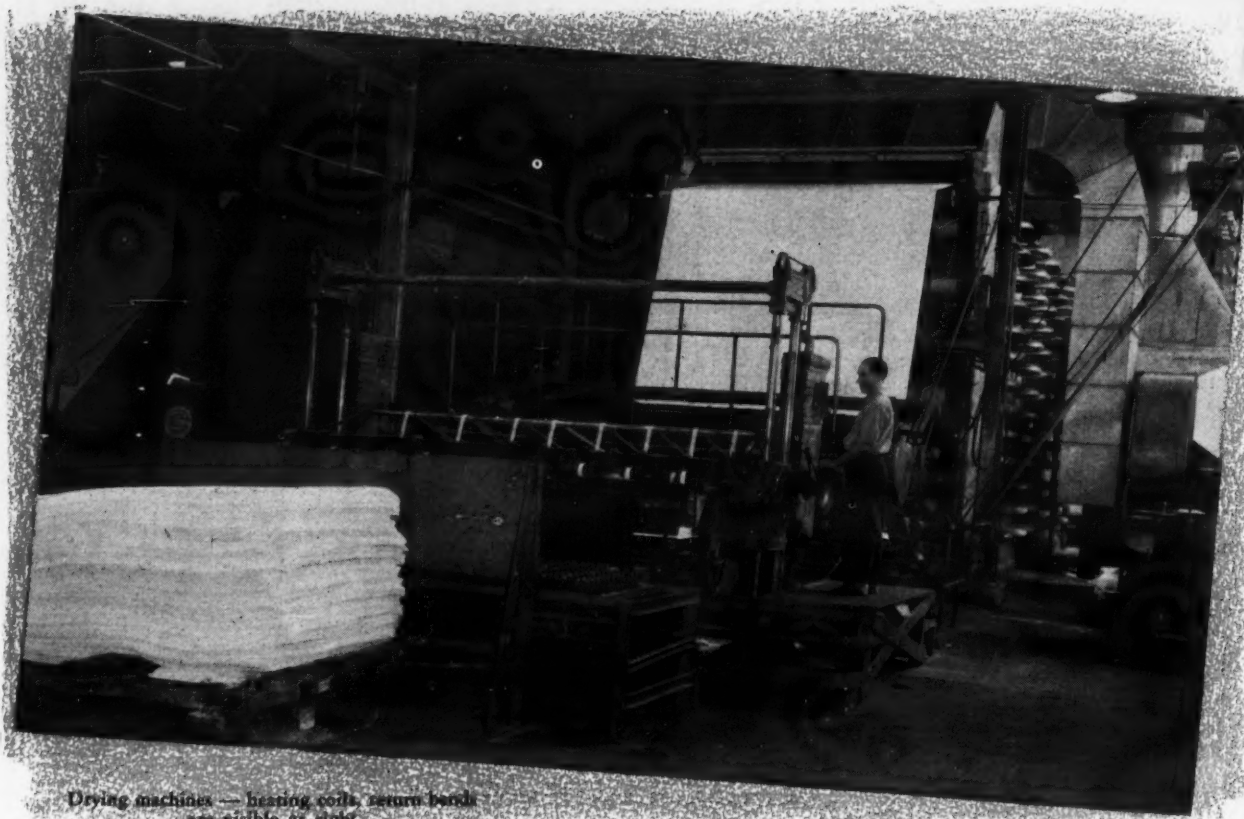


Inhibiting film on pipe surface does not interfere with transmission of heat

PROBLEM — Pulp drying machines in kraft division of a major paper company developed trouble through steam leaks, especially in the "U" bends carrying the steam or condensate from one set of coils to another necessitating shutdowns for repairs with consequent loss of production.

SOLUTION — Proportioning equipment was installed and solution of Tetra Phospho Glucosate, a molecular film forming chemical was injected proportionately into the 8 inch steam main to the drying machines. The equipment set up for applying the chemical consists of a three hundred gallon mixing and dissolving tank, equipped with a decanting pipe and agitator, mounted on the monitor roof over the machine room. The tank is piped to receive hot condensate from the machines or cold water, and is sufficiently large to hold four charges of the chemical. Condensate and water, mixed to maintain a temperature of 140 to 145 degrees F. is drawn into the tank and the chemical is added slowly with agitation during the filling. Agitation is continued for about half an hour after the tank is full, after which there is a twenty-four hour settling period. The clear solution is then drawn off through the decanting pipe, flowing by gravity to a 55 gallon measuring tank located just below, thence by gravity to a 50 gallon feeder mounted on the machine room roof just over the steam main. After the third batch has been introduced into the feeder, the fourth and last charge is drawn into the measuring tank and held there until needed. The mixing vessel is then washed out and recharged with fresh chemical making five batches of the chemical on hand.

The feeder making use of the Haering fluid piston principle, is activated by the flow of steam through the main header to the drying machines. Pressure differential for sensitive operation of the proportioning unit is obtained by the insertion of a 5 inch orifice plate in the 8 inch steam line, with taps on each side of the restriction. A pilot tube centers on the up stream side, and the chemical introduced through a discharge pipe on the low pressure or down stream side of the orifice. Installed in this manner, the feeder (identified as Model B) accurately responds to any variation in the flow of stream. (As the solution, dispersed in vapor, is carried through the system it is present in the condensate at and after the con-



Drying machines — heating coils, return bends are visible at right

densation point maintaining the inhibiting film intact. **RESULTS** — Corrosion and leaks in steam heating coils and return bends prevented. Former shutdowns and repairs avoided. Life of drying coils greatly increased. Required accurate feeding of chemicals and economical operation of system provided by feeding unit and its

method of installation. Detailed information on Glucosates on request.

D. W. HAERING & CO., INC., Dept. CP, 205 West Wacker Drive, Chicago 6, Ill.

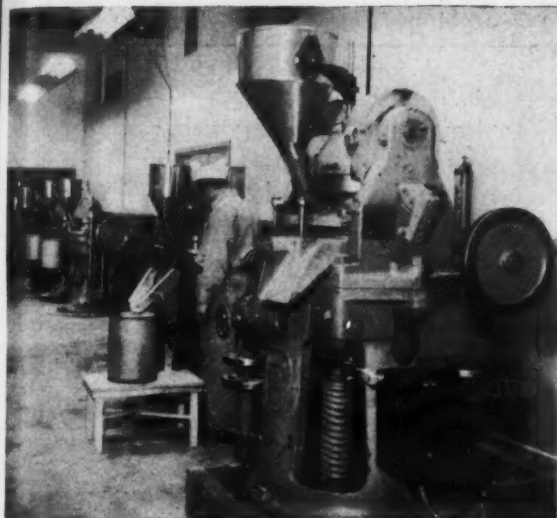
When inquiring specify CP 5 — see handy form pages 2-3

Humidity Control Assures Proper Forming Packaging of Drug Tablets

Citrates, carbonates, phosphates, effervescent compounds and other hygroscopic products protected from variation in quality

PROBLEM — Many chemical and pharmaceutical products, including those in powder or tablet form, must be processed and packaged under controlled atmospheric conditions. One typical case involves a powdered product. If it absorbs moisture it tends to become sticky.

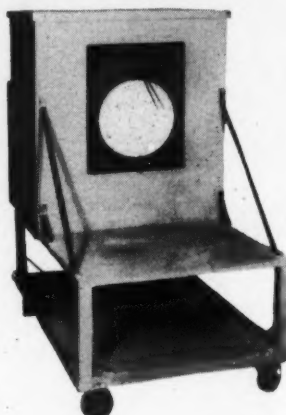
Also the slightest excess of humidity in the atmosphere causes moisture regain in the product and ultimate spoilage. In connection with tableted products, compressing departments must provide for precise humidity control. If such precautions are not observed, difficulty in proper tablet for-



Air conditioning assures proper tablet formation, prevents moisture regain

mation is encountered as well as possible disintegration in packaging.

SOLUTION — "Kathabar" System package units (see illustration) provide conditioning of the atmosphere for various departments of this plant. One of these handles 2500 cubic feet of air per minute and another 3500 cubic feet. The air is brought in from outside at a condition of 95° D. B. — 130 Grs/lb. The dehumidified air is introduced into the recirculating system at 19 Grs/lbs.



Portable temperature-humidity control unit

A variety of instruments are used, including sling psychrometers. Psychrometric charts are mounted on the wall for easy and quick reference. Particularly useful among the various instruments employed is a portable type temperature — humidity recorder which operates on a 24 hour cycle (see illustration). This recording unit embodies a precision type recorder which is mounted on a wooden box equipped with casters. A filter is provided at the side of the unit for filtering incoming air. Air is circulated by a small fan.

Controlled atmospheric conditions are especially important in tablet compressing operations. Humidity is vital to the forming of the tablet, and in preventing moisture regain after the tablet is formed. After the powder is tableted it must not be exposed to excessive moisture.

RESULTS—Citrates and carbonates, effervescent sodium phosphate and various tableted drugs are rapidly protected throughout all stages of production. Also, packaging machines are assured a free, easy flow of powder into cellophane or foil packages. At the same time the correct moisture content is permitted so that product stability is protected until the sealed package is opened.

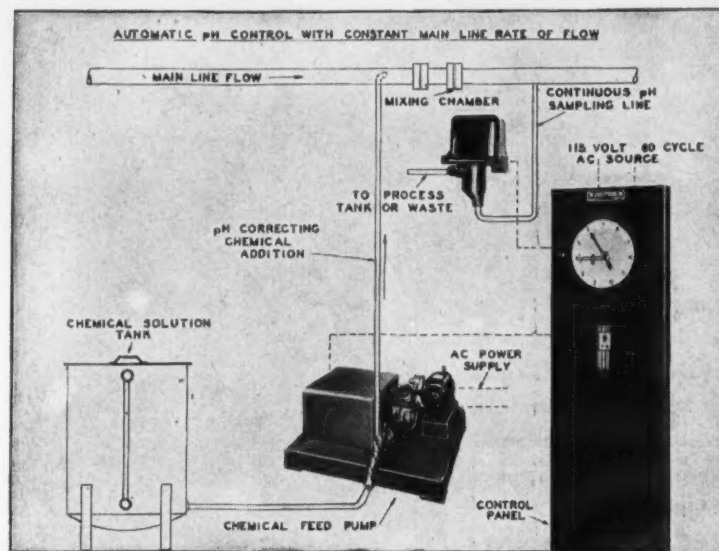
SURFACE COMBUSTION CORP., Dept. CP, Toledo 1, Ohio.

When inquiring specify CP 6 — see handy form pages 2-3

JANUARY, 1947

Automatic pH CONTROL

with Constant Main Line Rate of Flow



Milton Roy Pumps are controlled volume metering units, designed to meter and pump practically any liquids in volumes as low as 1 pint per hour to as high as 23 gallons per minute per pump side and against pressures as high as 20,000 lbs. per square inch. Because of the high degree of accuracy of volumetric measure made possible by the Milton Roy step valve design, these pumps have found many applications as components of automatic chemical feed systems.

Automatic pH control systems use Milton Roy controlled volume pumps both to measure the quantity of material required to maintain a desired pH value, and to transfer the chemical, injecting against pressure where desired.

On these systems, the pH meter and controller may function to either change motor speed, or to automatically change the length of the stroke of the pump. Control of stroke length is normally preferred for this type of system. Proper design of such a system is essential. Milton Roy chemical engineers are fully qualified to assist and recommend designs for such installations and to furnish the complete pH control system including pH meter, controller, and controlled volume pump.

For further information . . . on automatic pH control with varying main line rate of flow . . . on automatic proportioning and ratio control systems . . . and on pumps and other equipment for other automatic chemical feed systems ask for new Bulletin 468, also Technical Paper No. 54 "An Application of Electronics in Automatic Chemical Feed Systems."



MILTON Roy COMPANY

1310 E. MERMAID AVE., CHESTNUT HILL, PHILA. 18, PA.



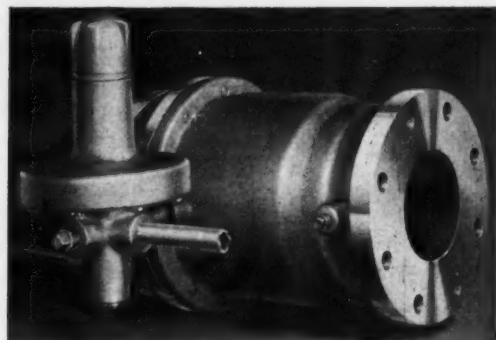
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MAINTAINING A FIXED Fluid Level.

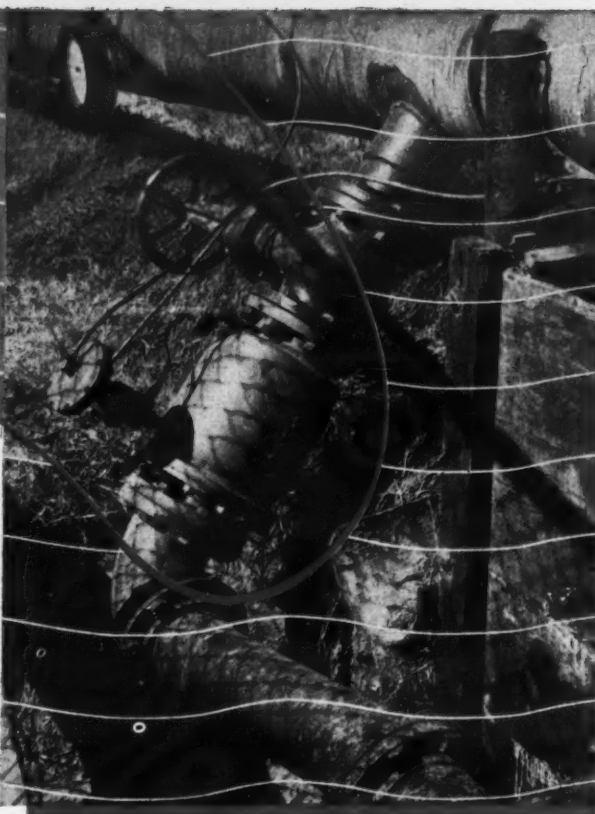
...6

MILES AWAY!

One of the many outstanding Grove Back Pressure installations is illustrated at right. In this application the Grove Flexflo Back Pressure Regulator is maintaining a constant head on an elevated 6-mile waste water line—automatically controlling the discharge of hot salt water. These units are especially suited for handling highly corrosive, erosive and hazardous fluids with no possibility of seepage or leakage. Positive bubble-tight shutoff is assured.

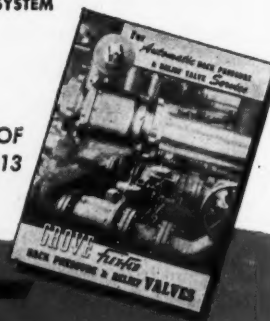


Grove Flexflo Back Pressure Valves are available in a full range of sizes for high and low pressure service.



- ★ POSITIVE BUBBLE TIGHT SHUTOFF
- ★ HIGH FLOW CAPACITY
- ★ MAXIMUM CONTROL-ACCURACY
- ★ NO STUFFING BOXES OR PACKING GLANDS
- ★ NO FIXED ORIFICES IN CONTROL SYSTEM

SEND TODAY
FOR YOUR COPY OF
NEW BULLETIN #813



GROVE FLEX-FLO

BACK PRESSURE and RELIEF VALVES

GROVE REGULATOR COMPANY

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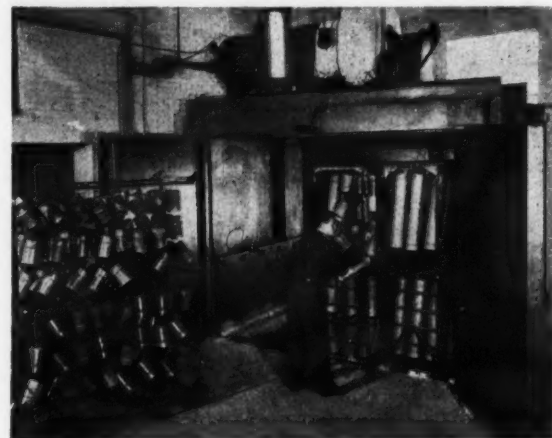
When inquiring specify CP 8 . . . see information request blank, pgs. 2-3

New Solutions

Flue Liner Coatings Baked to Polymerize 4 Successive Coats

Corrosion resistant finish provided by proper treatment in oven with adjustable ports

PROBLEM— The Minneapolis plant of the Heremetal Co. in applying a corrosion resistant, resilient coating to aluminum chimney liners found the processing requirements of this operation unusual because of the acute sensitivity of the plastic material to time or temperature variations. Size and shape of the flue liners was also



Coatings are baked on 450 liners with each load

a factor in selecting equipment. Tests showed that to secure the desired results the coatings would have to be subjected to a uniform, high volume heat flow within the processing chamber. These heat and control characteristics were required to assure complete polymerization of four successive coats of the plastic material into a hard, smooth, enamel like finish that would cling tenaciously to the metal. High volume heat flow was also necessary to achieve rapid uniform baking both inside and out of the liners when placed in racks in the baking chamber.

SOLUTION — A gas fired rack loaded baking oven was installed, complete with recording heat control instruments. The large capacity chamber contains adjustable ports for close regulation of heat flow and many features for convenient operation. Pickling is the first of several preliminary operations. The liners are cleaned in a hot caustic bath and are etched with a hot muriatic and a hot nitric acid bath. After each bath the liners are rinsed with water. Etching the aluminum makes the plastic stick. After the rinsing, the liners are given two primer coats and two finish coats of the plastic. The first three coats are baked for 20 minutes each at 300° F., the last coat for 1 1/2 hours at 400° F. Baking of the last coat polymerizes all four coats into one and changes the color from yellow to a deep brownish purple with a high gloss finish. (The plastic material may also be applied to agitators, tanks and many other units that must be corrosion and heat resistant. The coating is known as Heresite and is made by Heresite & Chemical Co., Manitowoc, Wis.)

RESULTS — Coating properly polymerized to assure required adherence to the metal. The finish coating is hard, tough, resilient, has high resistance to chipping, cracking. It withstands action of chemicals, solvents,

New Solutions

acids, salts, moisture and heat. The flexibility and toughness of the finish is especially desirable where the liners must be forced into old chimneys. The aluminum liners are only 1/8 as heavy as steel and the coating does not chip from them. Complete information concerning gas fired, rack loaded ovens and other types of processing work on request.

DESPATCH OVEN COMPANY, Dept. CP, Minneapolis 14, Minn.

When inquiring specify CP 9 — see handy form pages 2-3

Solvent Extraction System Converts Raw Seed to Finished Product in One Hour

Extraction process will help to increase supplies of soaps, salad oils, cooking oils, linoleum, paints and other products

PROBLEM — Before this development solvent extraction in a one step operation had not been commercially successful, except in the case of soya. Seeds and beans were first processed by hydraulic or expeller pressure methods, and then treated batchwise with a solvent to win much of the remaining available oil. These processes required from one and one-half to three hours to convert the oil in the raw to the finished product. With other methods of processing, where the castor bean is subjected to high temperatures over a long period of time, only 75% was high grade.

SOLUTION — The new process extracts 98-1/2% of the available oil from vegetable matter used in the production of soaps, salad oils, cooking oils, linoleum,

In addition to its flexibility, the new system requires only two-thirds the plant space needed by other processes, resulting in a substantial saving in building construction, installation and machinery costs.

RESULTS — As compared to the hydraulic or expeller pressure methods the new process cuts the conversion time to one hour. Faster processing and lower temperatures also result in better color and increased refinability for all oils.

The new system makes the residual meal marketable for the first time for use in the manufacture of glue, resins, emulsions, cloth, paper and other similar products. In the new method the proteins are not degraded, as they are when subjected to pressure, and therefore, are suitable for technical use in the manufacture of the above mentioned products. The system properly handles solids, shut-downs for cleaning purposes are reduced to a minimum and lower operating costs result. Details on this system are available from the developers of the process.

THE SHERWIN WILLIAMS CO., Dept. CP, Cleveland, Ohio.

When inquiring specify CP 10 — see handy form pages 2-3

Slide Rule Selector Simplifies Selection of Aluminum Alloys

Quickly indicates chemical composition in percent for twelve elements and shows physical constants

PROBLEM — Selection of exactly the right aluminum alloy to meet specific requirements involves checking a vast number of specifications. Such data as specific gravity, density, coefficient of thermal expansion, etc., are desired in connection with aluminum alloys in various product forms.

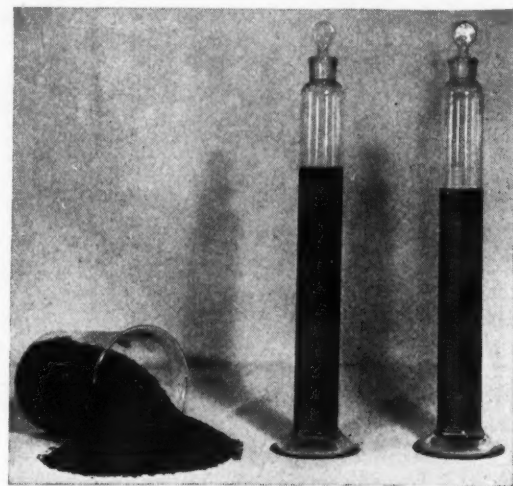
SOLUTION — A convenient slide-rule type of selector chart has been designed which contains a mass of technical information on 18 of the most widely used aluminum alloys. The chart embodies a horizontal slide that is pulled to line up with the particular alloy under consideration. Then the chart reads directly the chemical composition in per cent for twelve elements and shows physical constants including specific gravity, density, modulus of elasticity, in tension and torsion, coefficient of thermal expansion, thermal and electrical conductivity, specific heat. Data are also given on maximum forging temperatures, recommended cycles for solution heat treatment as well as precipitation heat treatment and annealing.

By moving a second slide vertically to line up with one of seven different products (sheet, plate, wire, rod-bar, shapes, tubing, piping, forgings, the chart shows tempers available in that product form; ranges of tensile strength, yield strength, hardness and elongation; comparable AMS, ASTM, Federal and Navy specifications. Aluminum alloys covered include 2S, 3S, 14S, 17S, 18S, 24S, Pureclad 24S, 25S, 32S, A51S, 52S, R353, 56S R361, R301, R303, Clad R03, R317.

RESULTS — The slide greatly simplifies selection of the desired alloy and temper for particular applications. In addition the chart includes an explanation of alloy and temper designations as well as a brief description of outstanding properties of each of the 18 different alloys. The charts are priced at \$1.00 each.

REYNOLDS METALS CO., Dept. CP, 2500 S. Third St., Louisville 1, Ky.

When inquiring specify CP 11 — see handy form pages 2-3



Comparison of yield between new and old method of oil extraction.

paints and other products. This yield exceeds other known processes to the extent that in normal years the increase in vegetable oil will reach 20,000 tons. A universal extraction plant is employed and it can be used interchangeably for the extraction of oil from castor beans, cottonseed, coca beans, copra, corn germ, cashew shell nuts, babassu, hempseed, linseed, lumbang, oiticica, palm nuts, palm kernels, peanuts, perilla, rape seed, safflower, sunflower, soy beans, sesame, tungnuts, and wheat germ.

JANUARY, 1947

It's Back on the Available List!



(IMPROVED DESIGN)

No. 960 Brass Pressure Regulator

1. For initial steam or air pressures up to 250 lbs., reduced to within 80%. Sizes up to 2 in.
2. Can't wear out; every working part is renewable. Piston operates in removable cylinder liner.
3. Easily adapted for any of four service pressure ranges: 1 to 10, 5 to 30, 20 to 100, 90 to 200 pounds. Setting within each pressure range is by simple hand-wheel adjustment. Operation is completely automatic.
4. Maintains uniform reduced pressure at all times. Pressure cannot build up.
5. Simplified design: has minimum working parts. Fully accessible for inspection under pressure. Easy to clean.

Descriptive Folder on Request

Gives sizes, dimensions, and shows how to select proper size regulator for your needs. Your Crane Representative will be glad to tell you about deliveries on No. 960 Regulators.



CRANE CO., 836 S. Michigan Avenue, Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

EVERYTHING FROM . . .

CRANE

FOR EVERY PIPING SYSTEM

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

When inquiring specify CP 12 — see handy form pages 2-3



NOT TOO MUCH OR TOO LITTLE WHEN TELLEVE

Controls the level of materials

Bulk or liquid materials are automatically maintained at the right level in storage bins or tanks equipped with S-A TELLEVE control switches. Overflows and empties are avoided. Rise and fall of material operates float arm to start or stop feeders, conveyors, valves, etc. . . and start or stop the flow of materials. Cut costs with TELLEVE bin level control switches.

Write today for
Bulletin No. 440.

STEPHENS-ADAMSON

MFG. CO.

Telleve-Bin Level Controls Saco Speed Reducers
Car Loaders Car Pullers Winches
SealMaster Ball Bearings

11 RIDGEWAY AVE., AURORA, ILLINOIS

When inquiring specify CP 13 — see handy form pages 2-3

An L-B LIQUID VIBRATING SCREEN Increased Separating Efficiency



200%

In the Plant of the
American Felt Co.

A Link-Belt Liquid Vibrating Screen shown here in The American Felt Company's plant, Glenville, Connecticut, increased efficiency in the removal of waste solids 200% over a previous method of removal.

Whatever your problem in separating liquids and solids, discover what Link-Belt Vibrating Screens can do for you in your plant. Removal of unwanted solids—recovery of solids for conversion into profitable products—dewatering of foods and chemicals—all these are being done by Link-Belt Liquid Vibrating Screens, faster and with reduced waste of materials. L-B Screens are available in a number of standard sizes and can be built with corrosion resisting metals when desired. Write for Book No. 1977 today.

LINK-BELT COMPANY

2045 West Hunting Park Ave., Philadelphia 40
Offices in principal cities

10,253



LINK-BELT Vibrating SCREENS

When inquiring specify CP 14 — see handy form pages 2-3

Page 10

New Solutions

Asbestos Hoods Increase Capacity Of Paper Dryers; Save Steam

Removable panels assure accessibility; air requirements of machines reduced 15% to 25%

PROBLEM — Papermaking is typical of the industries in which drying presents a problem, the ordinary machine room in this instance requiring 60 tons of fresh air for each ton of paper produced. Increased production requirements have imposed greater difficulties in achieving suitable ventilation and drying. In many cases hoods of



Hood and roof over drying machine. Exhaust fans may be serviced from catwalk along roof of hoods

wood, used rather widely until a few years ago, collected dust and were a fire hazard. They also interfered with operation and maintenance.

SOLUTION — A hood especially developed for paper mills is made of asbestos cement sheets which are fireproof, resistant to acids and are not affected by heat or moisture. Hoods increase the drying capacity and decrease the amount of necessary steam for that purpose. The amount of air required varies dependent upon the design of the hood, the amount of moisture in the paper entering the dryers, the moisture of the entering air, and the comfort requirements of the machine room. By using hoods the amount of heat needed for ventilating and drying is reduced. With a hood a lower supply air temperature is required to maintain the roof free from condensation, and the lower air temperature existing beneath the roof, the less heat is lost by radiation. In making the special types of hood referred to here, Transite asbestos board is bolted to exterior angle iron frames to form individual panels. The panel steel is all on the exterior of the hood. Each metal to metal joints is gasketed so that no vapor may come in contact with this steel. The smooth undersurface does not collect lint. Panels are furnished completely fabricated so that it is possible to erect an ordinary hood over a week-end shutdown.

The panel type of construction simplifies the alteration problem when the paper machine is changed. New panels may be added to accommodate additional dryers or removed in case the dryer section is shortened, without disturbing the balance of the hood. Control of the exhaust volume is made possible with this type of hood. A minimum exhaust volume with resultant savings may be used in winter, while retaining the possibility of a large exhaust volume in the summer for comfort.

The illustration shows this "Ross" system applied to a modern newsprint mill and especially adapted to this type of room construction with center skylight located in area where temperatures are low during many months. The insulated hoods with the carrier mechanism outside are



Recording pH of paper stock, Mosinee Paper Mills Co.

pH INSTRUMENTS For Most Needs

As pH problems in plant and laboratory grow more important the Micromax family of instruments for recording and control is increasingly depended on to meet requirements with accuracy and dependability.

For the particular instrument which will best solve your pH problem, we can provide the proper range; the required type of glass electrode; equipment for recording or control, or both. Either an L&N engineer, or our Catalog N-96(1), will supply further information on request.



LEEDS & NORTHRUP COMPANY, 4998 STENTON AVE., PHILA. 44, PA.

LEEDS & NORTHRUP

MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-TREATING FURNACES

Jrl. Ad N-96(5b)

When inquiring specify CP 15 — see handy form pages 2-3

A-F PORT-A-FLOW CONVEYORS FOR LARGE PLANTS—OR SMALL



A-F Portable Conveyors—such as this incline-belt design which elevates cartons into refrigeration rooms, storage warehouses and freight cars—provide a flexible, efficient, low-cost handling operation for a wide variety of applications in plants—large or small. Write for details of all types of A-F Conveyors. Or, if you have an "indoor transportation" problem, let us help you solve it. Write today!

THE ALVEY-FERGUSON CO., 71 Disney Street
Cincinnati 9, Ohio



When inquiring specify CP 16 — see handy form pages 2-3

CHEMICAL PREVIEW

MOISTURE ENGINEERING

with the KATHABAR System
automatically and accurately provides

**THE PROPER
Humidity**

— independently of temperature —
for processing operations in the
manufacturing of:

DRUGS, PHARMACEUTICALS, CHEMICALS,
FOODS, OR ANY PRODUCT OR MATERIAL
AFFECTED BY EXCESS HUMIDITY CONDITIONS.
... Write for information.

SURFACE COMBUSTION • TOLEDO 1, OHIO

**Kathabar System of
HUMIDITY CONTROL**
ADVANCED AIR CONDITIONING

When inquiring specify CP 17 — see handy form pages 2-3



**FLEXIBLE
COUPLINGS**

Safeguard your direct connected machinery against
unavoidable misalignment with the positive, trouble-
free drive of Ajax Flexible Couplings.
Write for Data Book.

AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, N. Y.

When inquiring specify CP 18 — see handy form pages 2-3

JANUARY, 1947

New Solutions

clearly shown. The air supply system of ducts also appears above the trusses. The system is also equipped with "Ross" Briner Economizers which extract the waste heat from the vapor laden air and utilize this heat to warm the incoming air.

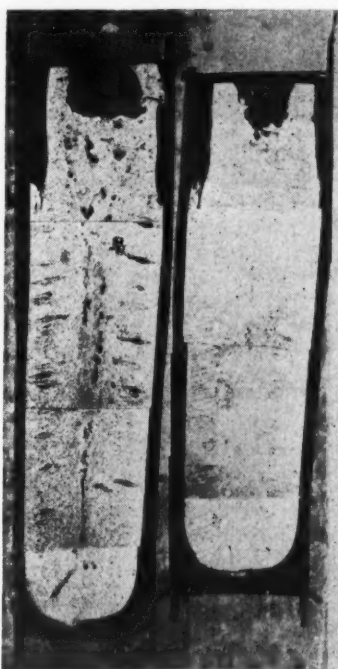
RESULTS — Increased drying capacity and decrease in amount of steam required. Hoods reduce air requirements of machines 15% to 25%. No fire hazards or dust accumulations. Panels easily moved for accessibility to machines for dryer removal or repairs. They resist acids and are unaffected by heat or moisture. More comfortable working conditions for employees. Cleaner paper obtained. (Literature is available which describes hood construction as adapted to various requirements and special hood types including those for the Yankee dryer.)

J. O. ROSS ENGINEERING CORP., Dept. CP, 350 Madison Ave., New York 17, N. Y.

When inquiring specify CP 19 — see handy form pages 2-3

Flush Molten Steel With Inactive Gas to End Dissolved Gas Porosity

*Dry nitrogen or argon bubbled through metal by
means of special tube*



Steel specimens before (left) and after
(right) flushing process is used

RESULTS — The specimen shown on the right in the accompanying illustration clearly shows the results obtained when this flushing process is used.

AIR REDUCTION SALES CO., Dept. CP, 60 E. 42nd St., New York, N. Y.

When inquiring specify CP 20 — see handy form pages 2-3

PROBLEM — The specimen on the left shows the resultant pockets of porosity that may develop when dissolved hydrogen is not permitted to escape from steel while it is being cast. Such pockets can easily ruin an entire heat of steel.

SOLUTION — Application of a flushing process by which dry nitrogen or argon is bubbled through the metal eliminates the dissolved hydrogen efficiently and at reasonable cost. The only equipment needed is a supply of dry nitrogen or argon and a special tube with which to introduce the gas in the form of small bubbles.

ALL ELECTRIC FLOATLESS LIQUID LEVEL CONTROLS...



The original — pioneered by B/W in 1933. No floats! No vacuum tubes! No moving parts in liquid. Literature describes relays and switches, automatic starter and relay combinations, multiple pump controls, special controls and panels and many application diagrams.

Controls not affected by pressures, temperatures, acids or caustics. Remote control if desired. Ice free electrodes where necessary.

WRITE FOR CATALOG

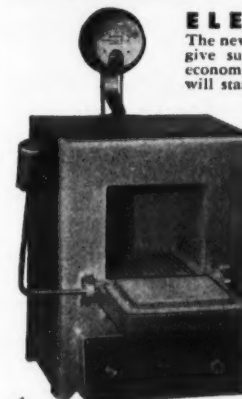
B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring specify CP 21 — see handy form pages 2-3

NEW TEMCO MODEL CEA



ELECTRIC FURNACE

The new MODEL CEA has been designed to give superior performance, with ease and economy of operation, at a low initial cost. It will stand hard use and is an ideal furnace for general laboratory purposes, heat-treating and small unit production.

SPECIFICATIONS

Temperature Control — Any temperature from 500° F. to 2000° F. can be selected and automatically maintained with TEMCO variable temperature control.

Pyrometer — Indicating type calibrated in both Fahrenheit and Centigrade scales.

Dimensions — Inside 4 3/4" wide, 4 1/4" high, 6" deep. Outside 12" wide, 15 1/2" high, 14 1/2" deep.

Prices Model CEA Complete
For 115 V. — A.C. only...\$80.00
For 115 V. — A.C. & D.C. 85.00
For 230 V. — A.C. only... 85.00

- Heats up to 1500° F. in 30 minutes.
- Can be operated continuously up to 2000° F.
- Embedded heating element protected against damage and chemical deterioration. Muffle core easily replaceable.

- Heating element, special high temperature alloy, completely surrounds heating chamber assuring the most uniform distribution of heat.
- Insulated with highly efficient, light-weight materials cast permanently into furnace body.

Other sizes available

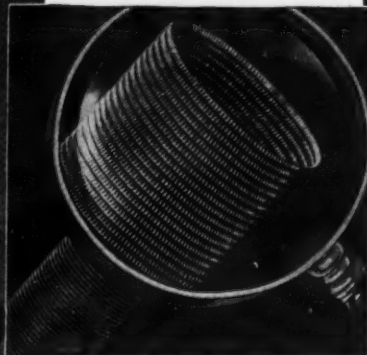
See your supply house or write for literature

THERMO ELECTRIC MFG. CO. 476 W. Locust St., Dubuque, Ia.

When inquiring specify CP 22 — see handy form pages 2-3

PREVENT *Rust·Scale·Dirt*

**FROM CLOGGING
STEAM EQUIPMENT**



YARWAY STRAINERS

"The Screen's the Thing"

- A High Grade Monel Woven Wire Basket with mesh fine enough to catch the dirt—yet ample free area for passage of clean condensate, oil and other fluids.
- Body Cadmium Plated for Protection Against Corrosion and for better appearance.
- Readily Removed Steel Blow-Off Bushing.
- Bushing Automatically Aligns Screen.
- Thousands in Use—Sold by Over 100 Mill Supply Houses.
- 6 Sizes 1/2" to 2" for Pressures up to 600 Lbs.

See Your Supply House or write for Bulletin S-201

YARNALL-WARING COMPANY
125 MERMAID AVENUE • PHILADELPHIA 18, PA.

YARWAY STRAINERS

When inquiring specify CP 23 — see handy form pages 2-3

Page 12

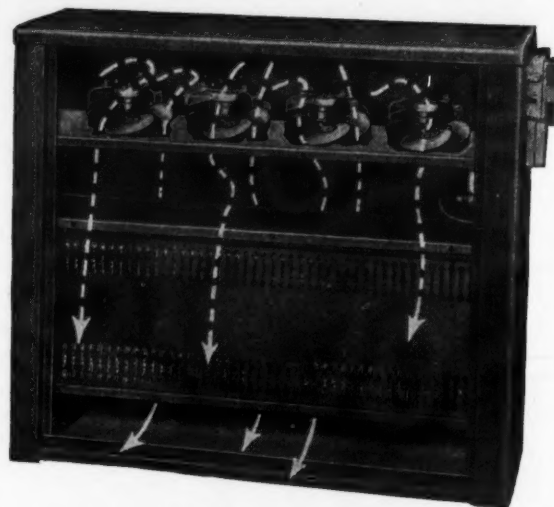
New Solutions

Air Conditioning System Provides Balanced Temperature, Humidity

Utilizes vapor pressure differential created by cold coil inside of an enclosure

PROBLEM — Air conditioning of laboratories, drafting rooms, offices and various plant areas has entailed various problems such as (1) Overcooling encountered when air temperature is lowered to dew point with consequent cold, clammy effect; (2) Proper cooling of area on hot dry days; (3) Economics in condensing unit horsepower required.

SOLUTION — A radically new type of air conditioning unit has been developed. The operating principle is



Arrows show flow of air past enclosed coil and entry into room after cooling

based on the law that vapor pressures equalize themselves. A cooling coil inside an enclosure creates a low pressure through small openings in the coil enclosure. There it condenses and is drained off. Air thus relieved of its moisture content flows past the enclosed coil without contacting it, and mixes below the coil with such small amounts of cooled air as entered the coil chamber by molecular attraction with the original vapor. (See cut away view). The mixture emerges into the room at a degree of both sensible and latent heat most conducive to comfort.

For example, air in a typical summer condition of 80° F. and relative humidity of 50% has a water vapor pressure of .517 in. mercury and a moisture content of 5 3/4 grains per cubic foot.

If a temperature of 32° F. is maintained in the coil enclosure, the corresponding water vapor pressure will be .180 inches of mercury; if the enclosure has a volume of one cubic foot of air, it can hold a maximum of 2.1 grains of moisture. Since vapor pressures will equalize themselves, the high pressure moisture vapor at .517 will flow into the coil enclosure having a low pressure of .180 inches of mercury. This flow will continue as long as the vapor pressure difference prevails. (Two floor models are available and are described in an illustrated folder)

RESULTS — Removes moisture from the air without overcooling, providing healthful, cool, dry, non-shocking air conditioning. Operates quietly, efficiently at low



Package Powders

With this NEW
TRIANGLE Automatic Feed AUGER
PACKER.

This Triangle Model Auger Packer feeds the material automatically into the container by foot lever control thereby reducing operator fatigue and increasing production from 15 to 25 over previous models. The new, streamlined unit is used for filling all kinds of powders — from seven ounces up to five pounds into cans, bags, cartons, jars. Production of one operator on 1 lb. packages 30 or more per minute. Accurate, easy to use, new Model U-1 puts powder into powder packaging, for itself in increased production. Write for circular which gives full details.

**15 to 25%
Faster!**

TRIANGLE PACKAGE MACHINERY CO.

917 NO. SPAULDING AVENUE, CHICAGO

BRANCHES IN PRINCIPAL CITIES

When inquiring specify CP 24 — see handy form pages 2-3

Easier, faster handling

... when you move it with a

YALE

THERE'S A YALE
HAND LIFT TRUCK
TO FIT YOUR NEEDS

Send for catalog
today, specifying
type of truck in
which you are
interested.



YALE

THE YALE & TOWNE MANUFACTURING CO.
4530 Tacony Street Philadelphia 24, Pa.

ELECTRIC TRUCKS • HAND AND ELECTRIC HOISTS • KROM DIAL SCALES

When inquiring specify CP 25 — see handy form pages 2-3

CHEMICAL PREVIEW



Inland 4-Way Floor Plate Safe... Strong... Durable

CHECK THESE ADVANTAGES AGAINST THE FLOORING YOU ARE NOW USING:

- Safe for foot or wheel
 - Carries the heaviest of loads
- Lasts for years and years
 - Cleans easily, drains freely
- Convenient to cut, form or weld
 - Matches and installs with ease

INLAND STEEL COMPANY

38 South Dearborn Street, Chicago 3, Illinois
Sales Offices: Detroit, Indianapolis, Kansas City, Milwaukee,
New York, St. Louis, St. Paul

When inquiring specify CP 26 — see handy form pages 2-3

(1) MAN DOES WORK OF 2 OR 3 in handling DRUMS, BARRELS When furnished with this SABIN TRUCK

The automatic action of this truck enables One Man, without helpers, to easily pick up drum or barrel loads weighing up to 800 pounds. Roller bearings make travel easy. EXCLUSIVE THIRD-WHEEL FEATURE gives better load support and balance — and permits loaded truck to stand alone.

(Type L-3)

Write for
BULLETIN
No. 45

The Sabin Machine Co.
6534 Carnegie Ave.
CLEVELAND 3, OHIO

ALSO TOTE PAN, BOX, CARBOY, KEG TRUCKS!

When inquiring specify CP 27 — see handy form pages 2-3

New Solutions

cost. Equipment automatically adjusts itself to true load. Tests made under operating conditions demonstrate that these units require only half the horsepower that would be required if all the air was cooled to its dew point.

AMERICAN COILS CO., Dept. CP, 25-27 Lexington St., Newark 5, N. J.

When inquiring specify CP 28 — see handy form pages 2-3

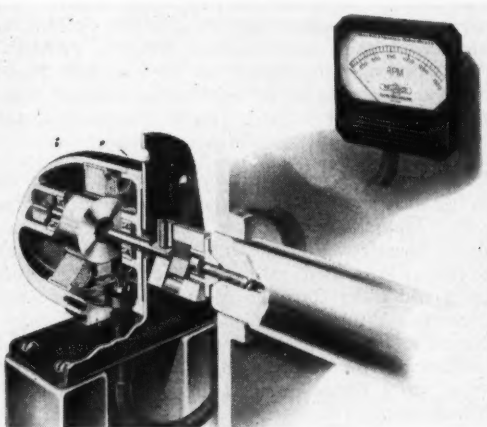
★

Low Cost Speed Indicator, Pick-Up Unit Mounts on Shaft

Indicators provided for full scale deflection
corresponding to 1500, 2000, 2500, 3000 and
5000 rpm

PROBLEM — Despite the desirability of reliable, continuous, visual speed indication the installation of such apparatus has not always been economically feasible. In some speed indicators the mounting of the generator has imposed a problem.

SOLUTION — A sturdy, accurate, low-cost electric speed indicator makes it possible to determine and to set proper operating speeds in a broad new field of applications. It gives accurate readings of speeds from 100 rpm to 5000 rpm and consists of two units. The pick-up unit, a miniature six-pole alternator with a permanent magnet rotor, is mounted on the shaft, the speed of which is to be measured. The indicator, a permanent magnet, moving coil type, meters the pick-up output on a $3\frac{3}{4}$ " scale which covers 95% of arc. The resistance of the indicator has been made sufficiently high, so that the size or length of leads connecting the unit will have no effect on accuracy, and the indicator



Electric speed indicator and scale

may be located at any distance from the pick-up unit. **RESULTS** — Accurate readings of speeds from 100 rpm to 5000 rpm. Instantaneous and continuous speed indication is independent of the direction of rotation of the shaft. Pick-up windings are stationary and there are no commutators or slip rings. No conduits are required, and lifetime lubrication simplifies maintenance. Fool-proof shaft coupling is provided, and the indicator may be bracket or panel mounted. Special scales are avail-

RELIANCE ELECTRIC & ENGINEERING CO., Dept. CP, Cleveland, Ohio.

When inquiring specify CP 29 — see handy form pages 2-3

NIAGARA Aero Cooling Does It Better! And Saves Cooling Water Costs

Close Temperature Control in Cooling Fluids

NIAGARA Aero Heat Exchanger cools liquids or gases to 10° of atmospheric wet bulb temperature and holds to tolerances of 2°F.

Compressed Air After Cooling

Furnishes drier compressed air—eliminates half the moisture allowed by conventional after-cooling methods.

Holding Quenching Baths to Temperature

Heat treaters increase production, improve quality, decrease rejections by using NIAGARA Aero Heat Exchanger to control quenching bath temperatures.

Condensing Refrigerant Gases

NIAGARA Aero-Pass Condenser increases refrigerating plant capacity, saves power. Duo-Pass prevents scaling and clogging of condenser. "Oilout" cleans the oil out of the refrigerating system.

NIAGARA AERO HEAT EXCHANGER is used in liquid cooling in industrial and chemical process, water jacket cooling, hydraulic fluid, transformer oil, lubricating and cutting oil cooling, vapor and steam condensing.

NIAGARA BLOWER COMPANY

Over 30 Years of Service in Industrial Air Engineering
Dept. CP-17, 405 Lexington Ave., NEW YORK 17, N. Y.

Field Engineering Offices in Principal Cities

When inquiring specify CP 30 — see handy form pages 2-3

THEY'RE HEAVY-DUTY...

THEY'RE *Skilled Lighting!*



Reflectors are the "backbone" of any lighting system...and your system is no better than its backbone. That's why Wheeler's new "7000" Heavy-Duty Fluorescent Fixtures are worth investigating, when you plan new installations.

Wheeler's "7000's" are typical Wheeler *Skilled Lighting*...engineered with skill acquired in over 64 years of specialized experience...built to full RLM standards. All-steel construction...rigid wiring channels...easily-accessible enclosed ballasts...heavy porcelain-enameled steel reflectors. Made in open- and closed-end models...two and three-lamp 40-watt, and 2-lamp 100-watt units.

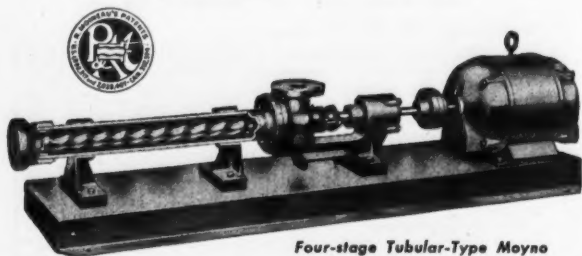
Write for detailed Bulletin 74. Wheeler Reflector Company, 275 Congress St., Boston 10, Mass. Also New York. Representatives in principal cities.

Distributed Exclusively Through Electrical Wholesalers

Wheeler REFLECTOR COMPANY
Lighting Equipment Specialists Since 1881

When inquiring specify CP 31 — see handy form pages 2-3

This 4-Stage Pump has just ONE Pumping Element!



Four-stage Tubular-Type Moyno Pump with section of housing cut away to show rotor.

Multi-stage pumping for high pressures or high heads usually requires two or more individual operations by two or more individual units—the first delivering under pressure to the second, the second adding its pressure when delivering to the third, and so on. Usually, it's a costly and cumbersome arrangement, but *not* with a Moyno Pump! Multi-stage operation in the R & M Moyno adds *not one moving part*.

The longer the rotor and stator, the greater the number of seal lines, and each seal contributes an equal share to total discharge pressure. Power is supplied by a single motor. Everything is mounted upon a single welded steel base, whether the pump has one stage or six.

NO PULSATION—LOW TURBULENCE



This is a single-stage pumping element. It has three continuous seal lines. The four-stage unit has twelve individual seals.

The amazing Moyno principle is as simple as it is difficult to explain clearly in a few words. A single-thread helical rotor revolving within a double-thread stator imparts positive pumping action comparable to that of a piston moving through a cylinder of infinite length.

DURABLE—VERSATILE—DEPENDABLE

The Moyno pumps virtually everything from free-flowing liquids to non-pourable pastes. It is self-priming, stands up on abrasives, resists chemical reaction, passes particles and solids in suspension, confines all wear to conveniently replaceable parts. Thousands in service. Get the facts. Take the time right now to ask for our new book, "A Turn for the Better in Positive Pumping Without Pulsation."



ROBBINS & MYERS • INC.

MOYNO PUMP DIVISION • SPRINGFIELD, OHIO
HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

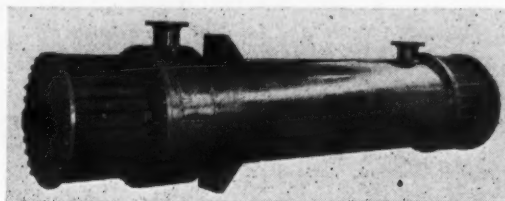
When inquiring specify CP 32 — see handy form pages 2-3

New Solutions

Corrosion Resistance, Thermal Conductivity Combined in Karbate

Heat exchange equipment fabricated from impervious graphite in range from immersion heaters to large tube bundle units

PROBLEM — The problem of heat transfer becomes even more complex when corrosive fluids must be carried in the equipment. Thus equipment that embodies materials both



Medium size shell and tube exchanger built of "Karbate" impervious graphite

resistant to the action of acids, alkalis and other corrosive solvents or reducing agents plus a wide range of thermal conductivity is desired. Typical of the fluids that are difficult to handle are: acetic acid with impurities of hydrobromic acid, ammonium sulfate, ammonium fluoride, 24% brine solution saturated with chlorine, calcium bisulphite, carbon disulfide, and hydrogen sulphide vapors, carbon tetrachloride, chlorine and hydrochloric acid, 50% caustic soda, chlorinated alcohol, chlorinated hydrocarbons, hydrochloric acid to all concentrations, hydrochloric acid and hydrocarbons, hydrochloric acid and nitric acid (estimated 10%), phenol sulphonic acid, phosphoric acid, plating solutions, potassium-alum complex solution, potassium persulfate, rayon spin bath, stannous chloride, sulfuric acid (50% at boiling temperatures, to 80% at 300 degrees F when contaminated with hydrocarbons), sulfuric acid and beryllium or copper sulfate, thionyl chloride, tin plating solution, toluol and hydrochloric acid vapors.

SOLUTION — A wide variety of heat transfer equipment for corrosive fluids has been fabricated of impervious graphite, ranging from simple immersion type heat exchangers to relatively large tube bundle units. Cascade type coolers are used extensively for cooling hydrogen chloride and other corrosive gases either with or without simultaneous absorption. Concentric tube exchangers are employed to recover heat and spent solutions by pre-heating make-up water or chemicals, to exchange heat in various parts of stripping or refrigerating systems and to absorb hydrogen chloride in water to produce water white hydrochloric acid free from metallic contamination.

These shell and tube exchangers can be mounted in various positions, — horizontal, vertical, inclined, and have been used for all concentrations of hydrochloric acid and nearly all concentrations of hot sulfuric, phosphoric, and acetic acids, wet chlorine and the organic solvents. Mechanically, impervious graphite may be compared with gray cast iron in its general characteristics though it is much stronger in compressive than in tensile strength and there is practically no elongation under tension. The maximum safe steam working pressure for both tube and shell sides is normally placed at 50 psi and test pressures at 110-115 psi, gauge, though safety factors vary with pipe sizes.

Operating temperatures from 240 degrees to 338 degrees

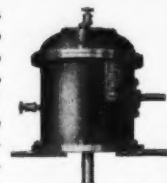


LET'S WORK TOGETHER

NETTCO

HAS THE AGITATING EXPERIENCE
TO HELP YOU!

Since grandad was a boy Netco has worked with thousands of processors to develop more efficient agitating equipment — to mix products better, faster, for less money. Netco Agitating Equipment today, in gear ratios from 1 to 2,000 and speeds from 1/2 to 1750 R.P.M., can be economically assembled from Netco standardized parts and units to meet your exact requirements. For better agitating equipment ask Netco to work with you!



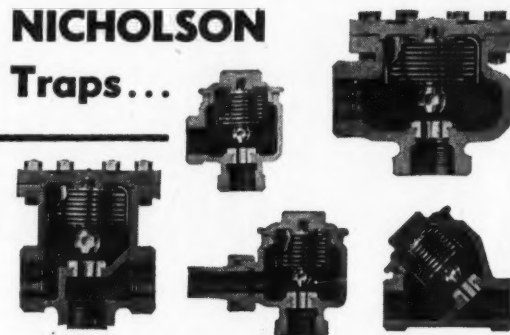
NETTCO Model WT Agitator Drive Unit

Write for Catalog

NEW ENGLAND TANK & TOWER CO.
93 TILESTON STREET, EVERETT 49, MASS.

When inquiring specify CP 33 — see handy form pages 2-3

NICHOLSON Traps...



for a Wide Range of Exacting Conditions

The advantages of one source of supply for such a commonly employed unit as a steam trap are readily evident. Consider Nicholson traps... they are: built in sizes and types for almost any application; extremely simple, minimizing trouble and expediting line work; big in drainage capacity, 2 to 6 times average traps; low-cost, making frequent trapping practical; engineered for severe service; standard in many plants.

5 types; sizes 1/4" to 2"; pressures to 225 lbs.

Catalog 444 **W. H. NICHOLSON & CO.**
or see Sweet's 181 OREGON ST., WILKES-BARRE, PA.

When inquiring specify CP 34 — see handy form pages 2-3

New Solutions

F. for different grades are common, though application of still higher temperatures to one side of the pipe is permissible if provision is made to carry off the heat from the opposite surface at a rate which keeps the temperature in the body of the material below the critical point. Shells, baffles, domes, tie rods of "Karbate" material have been developed for applications in which it is desirable to handle corrosive fluids on the shell side of the exchanger. Impervious graphites are compatible and can be used freely in combination with rubber-lined and various non-metallics, making possible the design of special equipment that formerly was not thermally efficient due to the materials that were available for fabrication. Thus, evaporators with "Karbate" tubes and sheets can be combined with chambers of an alloy or of steel lined with rubber, glass or lead. This results in heat transfer surfaces of high conductivity combined with insulating surfaces of low conductivity. Cemented joints are employed for factory assemblies and the resultant bonds are normally stronger than the stock. Field joints are readily made with threaded, flanged or with "Flexrock" joints.

RESULTS — Use of "Karbate" provides material with wide range of thermal conductivity as well as great resistance to acids, alkalies, etc. It makes possible special types of equipment that could not be successful used if made of many other types of materials.

NATIONAL CARBON CO., INC., (Unit of Union Carbide and Carbon Co.) Dept. CP, 30 E. 42nd St., New York, N. Y.

When inquiring specify CP 37 — see handy form pages 2-3

★

Test Data Bulletins Simplify Reconversion Problems

Is your plant equipment up to date? Are your labor costs over 40%? Will you be out of competition because of excessive production costs when the postwar market hits its stride? And, if you already have ordered new equipment on which you must await delivery for an indefinite or extended period, what arrangements have you made to maintain competitive production costs, and thus assure yourself of a market, until this new equipment is delivered? An answer to these problems may be found in a series of brief, illustrated bulletins which suggest more economical production methods, and temporary methods for converting present equipment to modern techniques pending delivery of new machinery, by supplying "missing links" from available, standard materials in your own shop. Bulletin No. 3, for example, deals with testing coated abrasives by wood-sanding, metal sanding and field tests. Reasons for laboratory testing, and a discussion of increased efficiency resulting from new war materials and techniques, is included. Bulletin No. 4 concerns belt sanding of metal, with suggestions for replacing outmoded set-up wheels with the modern coated abrasive belt. Use of the polishing lathe with abrasive belt is described, also contact wheels, belt speeds, removal of metal and finishing, backstands, alignment and length of belts, and abrasives. Accompanying form letter states that income tax reports show only 6 out of 10, or 60% of those reporting, pay an income tax, even during boom periods, and concludes that 40% make no profit even during times of prosperity. A convincing argument for modernization, plus practical suggestions for accomplishment. To obtain copies of these bulletins, address manufacturer.

CLOVER MANUFACTURING COMPANY, Dept. CP, Norwalk, Conn.

When inquiring specify CP 38 — see handy form pages 2-3

GROEN

STAINLESS STEEL
STEAM-JACKETED
MIXER TYPE
KETTLE



WIDELY POPULAR WITH CHEMICAL PLANTS

THERE'S A TYPE FOR EVERY NEED

... standard or built
to suit special
requirements. Tell us
your problem

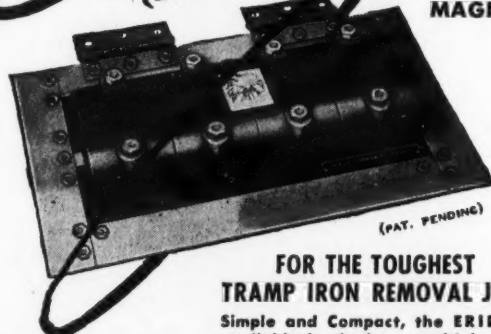
Throughout the Chemical field for many years GROEN Stainless Steel Steam Jacketed Kettles have been noted for dependability. The Mixer Type shown here is typical. You can count on its reliable performance. It is expertly designed, engineered and tested for consistent service. Unexcelled for precise, accurate mixing. Get details on this. GROEN MFG. CO., 4531 W. Armitage Ave., Chicago 39, Ill.

WHEN BETTER METALS ARE MADE — GROEN WILL USE THEM

When inquiring specify CP 35 — see handy form pages 2-3

Eriez
(EAR'EEZ)

NON-
ELECTRIC
PERMANENT
MAGNETS



FOR THE TOUGHEST TRAMP IRON REMOVAL JOBS

Simple and Compact, the ERIEZ is available in single or multiple row units to assure 100% separation of tramp iron from plastics, chemicals, coal, powders, fibers, liquids, pellets, etc. in process. Tell Us . . .

1. What You Process.
2. Depth and Speed of Flow.
3. Means of Conveyance.

We will recommend the correct ERIEZ Magnet combination for the job.

WHEN IT'S MAGNETIC PROTECTION — SEE ERIEZ FIRST

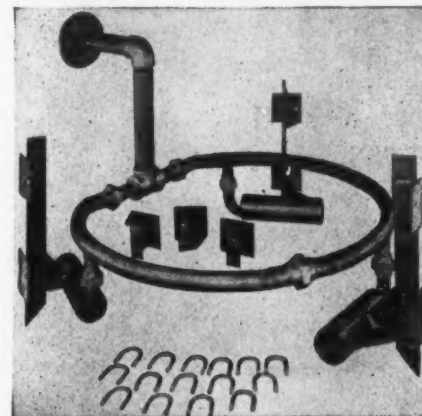
ERIEZ MANUFACTURING COMPANY

16 East 12th Street • Erie, Pennsylvania

When inquiring specify CP 36 — see handy form pages 2-3

JANUARY, 1947

ALLOY



Stainless Fabrications

More than a quarter-century of fabrication experience with all grades of alloys, is available for special work.

Let us quote on your requirements, and ask for Bulletin CP 30.

ALLOY Manufacturing Co., Inc.

30th and Brereton Ave., Pittsburgh 19, Pa.

When inquiring specify CP 39 — see handy form pages 2-3

MULTIPLY VALVE LIFE

by using the RIGHT alloy



IT IS amazing how valve life in corrosive fluid lines can be multiplied by a change to the right alloy. In one Eastern chemical plant, original valves lasted two weeks, were replaced by valves of another alloy that lasted two months. Then, Alloyco Valves in the RIGHT alloy were installed — and are still on the line AFTER THREE YEARS CONTINUOUS SERVICE. In types, sizes and pressures, also, Alloyco Valves meet the most exacting requirements. They combine maximum corrosion resistance with easy, positive action. Consult us for your requirements. ALLOYCO VALVES are made in Alloyco 20, 18-8S, 18-8SMo; and higher Chrome-Nickel series — Wrothite, Hastelloy, Monel, other alloys and pure nickel.

ALLOYCO

Stainless Steel
VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
V VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES
SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

ALLOY STEEL PRODUCTS COMPANY, INC.

1302 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

When inquiring specify CP 40 — see handy form pages 2-3

Lifts, carries, tiers,
loads of 1000 lbs. to 84"



CLARK TRUCLOADER

—light, compact,
fast, designed for
operating in and
out of trucks,
trailers, low-capacity
elevators and
general material
handling operations.

Gas and electric powered.

TO SEE CLARK TRUCLOADERS AT WORK
IN BUSINESSES LIKE YOURS SEND FOR
NEW PICTORIAL LITERATURE.

Visit National Material Handling Exposition
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CLARK TRUCTRACTOR

Division of CLARK EQUIPMENT COMPANY
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OTHER PLANTS — BUCHANAN, JACKSON, BERRIEN SPRINGS, MICHIGAN

Other CLARK Products	
FORK LIFT TRUCKS	ELECTRIC STEEL CASTINGS
TOWING, DUMP AND	METAL SPOKE WHEELS
SHOVEL TRACTORS	AXLES & HOUSINGS
RAILWAY TRUCKS	TRANSMISSIONS

Prices on CLARK products will not be advanced in excess of increased costs.

When inquiring specify CP 41 — see handy form pages 2-3

New Solutions

Describes Voluntary Standards for Industrial Mineral Wool Products

A voluntary code for testing and reporting various forms of mineral wool, with reference to those properties which effect its usefulness and efficiency, is available in pamphlet form through the joint efforts of Industrial Mineral Wool Institute and the National Bureau of Standards. This describes purpose and scope of the project, defines various mineral wool products such as blanket, block, board, felt, granulated, etc., sets up a method of sampling, also methods of testing and reporting on adhesive and compressive strength, corrosion resistance, etc., of the respective products. Text concludes with a list of some 225 business firms which have agreed to utilize these standards insofar as practicable in their activities as producer, distributor, purchaser or testing laboratory. Copies of the pamphlet, identified as Commercial Standard CS131-46, may be obtained without charge by addressing the Institute at the address below.

INDUSTRIAL MINERAL WOOL INSTITUTE, SPECIFICATIONS COMMITTEE, Dept. CP, 441 Lexington Ave., New York, N. Y.

When inquiring specify CP 42 — see handy form pages 2-3

Machine Molds U Type 180° Fold In Thermoplastic Sheets .005-.020"

Eliminates tearing, cracking, opening up in fabrication of containers and similar operations



Thermoplastic sheet folder housed in streamlined cabinet operates with hand feed, foot treadle and simple controls

folding of plastic sheeting ranging from .005 to .020 inches in thickness into a "U" type — 180 degree fold, with sides tight together. The equipment provides a controlled folding cycle which enables an operator to turn out approximately 700 "formed folds" an hour. Whenever folding in multiples is entirely practical, this production rate is stepped up appreciably. The formed fold

PROBLEM — Fabrication of containers from rigid plastic sheeting on an increasing scale prompts the development of equipment to meet requirements for more precise and rapid production. Similar needs are faced by other processors and fabricators of materials of thermoplastic qualities.

SOLUTION — A plastic folding machine introduced under the name of "Thermofold" makes possible the



APCO Single Stage Turbine-Type Pump

The APCO Pump—available in capacities to 150 G.P.M. and heads to 600 feet—is the highest development of the Turbine-Type Pump. Handles any free flowing liquid including NON-LUBRICATING liquids almost indefinitely without wear. Distinguished on small capacity, high head duties — water supply, Boiler Feed, Condensation Return, Circulating, Transfer, Booster, Self Priming, Marine, Distillery, Dairy, Special Metal — "1001" Duties. Delivers with slight change in capacity against drastic head conditions.

AURORA CENTRIFUGAL PUMPS

A complete line, notable for streamline coordination between impellers and shells, including Horizontally Split Case, Single and Two Stage, Side Suction, Vertical, Non-Clog, Sump, Mixed Flow, Special Design, etc.

- Simple — Wear-Free — Compact
- High Efficiency
- Silent Operation
- Will not vapor-bind
- Hydraulically Balanced
- Accessible
- High Suction Lift
- No Metal-to-Metal contact
- High Pressure per stage
- Double Suction
- Precision Shafts
- Two outboard ball bearings
- Right or Left hand operation
- Replaceable cover plates

Write for
CONDENSED CATALOG
"M" or Consult SWEET

DISTRIBUTORS IN PRINCIPAL CITIES



AURORA
PUMP COMPANY

62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP 43 — see handy form pages 2-3



SPRACO NOZZLES

Write for NOZZLE CATALOG to
SPRAY ENGINEERING CO.
125 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring specify CP 44 — see handy form pages 2-3

CHEMICAL PREVIEW

New Solutions

is accomplished by means of thermostatically controlled heat. By means of the electrically-heated, thermostatically controlled folding blade, a fold is formed in the plastic sheeting by molding the material into the desired form. The machine is adjustable to accommodate all types of thermoplastic sheeting.

The unit is hand fed and foot operated and the actual fold cycle is automatically controlled. The operation includes six simple steps. (1) Turn on heat switch. Blade heats to operating temperature (225°-300° F.) in 15 minutes. (2) Have materials in blank form cut to allow for desired fold. (3) Place either one or both feet on operating control. (4) Place material so that it is against back gauge of machine. (5) Move foot treadle forward and hold for short interval depending on material. This causes blade to come into contact with the material. (6) Continue forward movement of treadle which then operates machine to form the fold.

The accompanying illustration shows the fully enclosed design of the unit, treadle, and on the upper front treadle and two indicator lights. The first light tells when the current is on; the second when the thermostatic switch is functioning, going out when the thermostatic setting is reached. Other operating accessories include a dial type thermometer to register temperature of the heated forming blade and an adjustable thermostat to regulate and adjust folding blade temperature. The folding blade has a length of 16 inches.

Construction features are lightness and strength achieved through the use of aluminum and fabricated steel. Streamlined design makes it easy to keep machine dust and dirt free, an important advantage in sheet folding operations. **RESULTS** — Makes practical folding of sheet plastic ranging from .005 to .020 inches in thickness into a "U" type fold of 180 degrees, with sides tight together. Tearing, cracking and opening up avoided. Prelubricated ball bearings; oilless bushing eliminate expense of power drive.

TABER INSTRUMENT CO., Dept. CP, North Tonawanda, N. Y.

When inquiring specify CP 45 — see handy form pages 2-3

★

Perforated Metal Catalog Includes 390 Actual Perforation Sizes

Perforated metals, screens and fabricated metal products are the subject of an impressive, 128-page catalog commemorating manufacturer's 70 years of perforating experience. Actual-size illustrations of 390 shapes and sizes of openings in perforated metal ranging, for example, from round perforations as small as .023" diameter with 400 holes per square inch, to perforations of 8½" diameter. These cover a wide variety of industries and include vibrating, flanged lip, milled-slot and wedge-slot screens, also screens for sizing and dewatering. Several pages are devoted to flights, conveyor troughs and elevator buckets. A section is included on perforated metal grilles, of which this manufacturer makes over 100 standard designs, and ornamental perforated metal for constructional and industrial uses. Space is devoted to manufacturer's Mitco products such as open steel flooring, Armorgrids, Shur-Site treads for stairs, and material for plate and machine tool use, with illustrations of typical products. Catalog concludes with 19 pages of useful tables for workers in any metal industry line. A copy may be obtained by addressing manufacturer on your business letterhead.

HENDRICK MANUFACTURING COMPANY, Dept. CP, Carbondale, Pa.

When inquiring specify CP 46 — see handy form pages 2-3

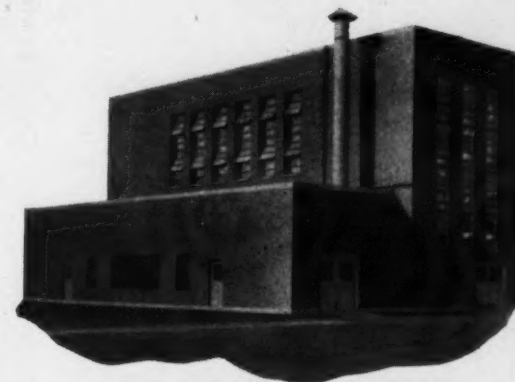
JANUARY, 1947

WITH THIS NEW RESEARCH PLANT SWENSON can help you obtain the advantages of Spray Drying

NOW it is possible to conduct spray dryer tests of any pumpable, dryable substance on a production scale under normal operating conditions. New research facilities recently completed at Harvey, Ill., enable Swenson engineers to evaluate the use of spray drying for various chemical processes, and bring its many advantages to new applications in the industry.

Spray drying may be used for both organic and inorganic materials, including those particularly susceptible to heat. It produces a powder of uniform particle size and high solubility. The Swenson process operates as a closed system, assuring freedom from contamination and recovery of all the solids contained in the mother liquor.

Can spray drying improve your product or any process in its manufacture? Swenson engineers will gladly consult with you and give any possible assistance in your drying problems.

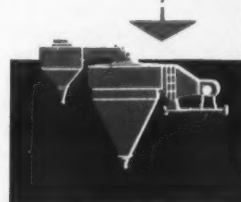


Complete description of these new research facilities contained in Bulletin D-101—copy on request.



Main hot air duct and venturi; and (right) liquid collector and two powder collectors.

Top of drying chamber showing the exhaust duct leading to liquid collector in background.



SWENSON EVAPORATOR CO.
DIVISION OF WHITING CORPORATION
SPRAY DRYER DEPARTMENT, 221-L N. La Salle St., Chicago 1, Ill.
Export Department 30 Church Street, New York 7, N. Y.

When inquiring specify CP 47 . . . see information request blank, pgs. 2-3

SOLVENT EXTRACTION PROCESS

Refines Vegetable, Animal and Marine Oils

BY HERBERT J. PASSINO,
Associate Director of Research
The M. W. Kellogg Company

New Materials



Process uses purely physical means to separate oils into their various components according to the complexity of their structure and molecular weight.

USES — The Solexol Process is a solvent extraction method used to treat vegetable oils, fish oils, animal fats, waxes, and fatty substances in general. In a single continuous physical operation, it extracts, decolorizes, separates, and deodorizes the basic components of these substances.

FEATURES — By the use of this process for handling various glyceride-containing oils such as soybean, fish body, fish liver, cottonseed, etc., the separated components are greatly enhanced in value rather than degraded. Operating costs are low, and recovery of various products with high market value is achieved from oils which, in their present state, sell at very low prices. The method employs a non-chemical principle never before applied to the commercial refining of fats and oils and operates at temperatures well below the boiling point of water — thus assuring preservation of the natural qualities of all components of the oil. The process is so completely instrumented with automatic control devices that a crew of two men is amply sufficient to operate the average size commercial plant. Processing costs by this method depend on the size and type of installation. They may be as low as from a fraction of a cent to three cents per gallon of oil processed. Factors contributing to the low operating costs are: (1) the unit includes no moving parts, with the exception of oil and solvent pumps and compressors; (2) the initial cost of the solvent is extremely low, with only a nominal replacement cost, since the operational loss is less than one-tenth of one per cent of the amount circulated; (3) no chemicals other than the solvent are used; (4) high temperatures are avoided.

Process has proved effective in developing new oil products from various types of animal fats. Oils, from these, like the others, emerge from the process in a highly pure, natural state, and are suitable as basic ingredients for the manufacture of a wide variety of products which heretofore could not utilize these particular stocks. For the pharmaceutical industry, the process opens up a totally new source of vitamins A and D in its economic applica-

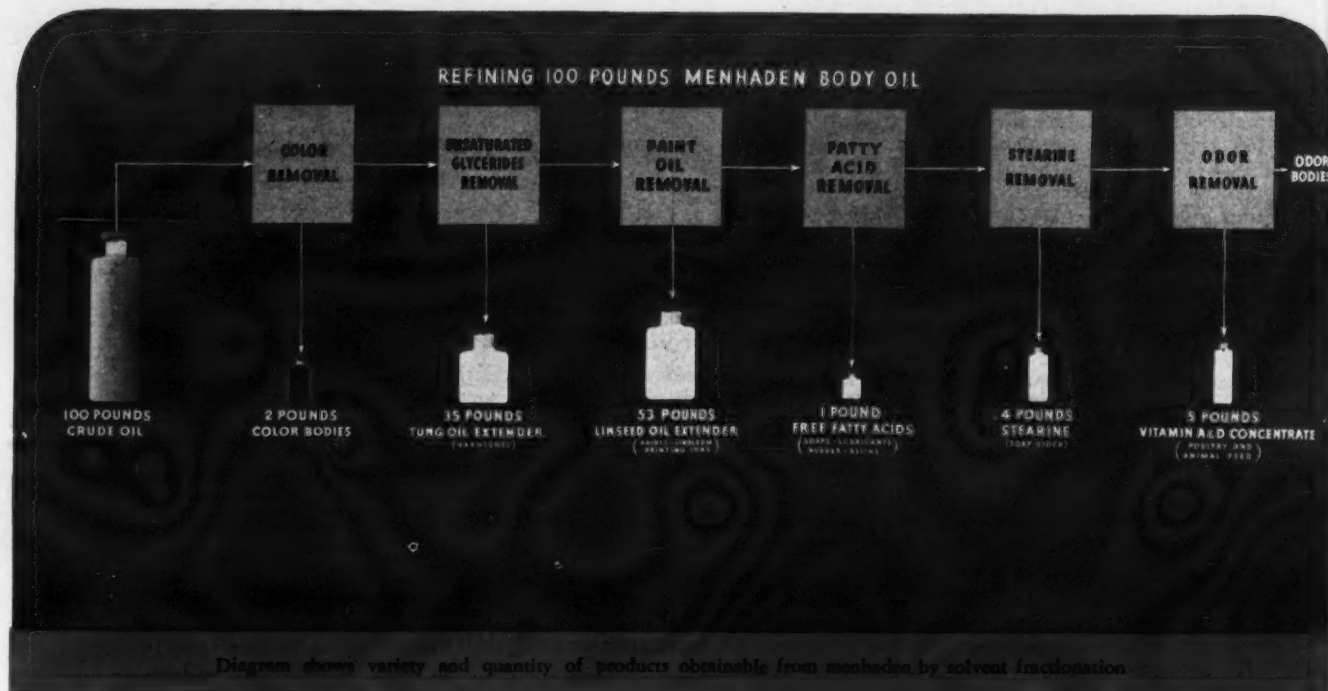
bility to the hitherto untapped field of low vitamin potency fish body oils, such as sardines, herring, and menhaden. It also increases the concentration and recovery of high potency vitamin oils now being isolated from the livers of such fish as soupfin, shark, halibut, and cod.

DESCRIPTION — The process is one of continuous countercurrent extraction and works essentially automatically in a completely air-excluded system. The solvent follows a circulating course throughout the process and is recycled repeatedly with the very nominal losses mentioned above. The solvent employed in most cases is a special grade of propane which, at low temperatures, mixes in all proportions with the glycerides. As the temperature is raised, however, the ability of the propane to dissolve the high molecular weight components of the oil, as well as components with multiple functional groups, decreases until two layers separate. As the temperature is raised further, more and more of the heavier derivatives are precipitated into the bottom layer leaving a concentrated light oil fraction in the upper layer. Finally, at the critical temperature of propane, 206° F. — relatively cold when compared to the temperatures of other refining techniques — practically everything has been precipitated. Thus, a selective extraction of as much material as desired can be achieved by merely raising the temperature and bringing the oil-propane mixture to equilibrium.

The products which can be separated by the treatment of crude menhaden oil by this process are shown in the accompanying diagram. These particular samples were prepared on the initial pilot plant used in these investigations and do not represent the ultimate separation which is to be expected on crude menhaden oil with the new Kellogg Solexol pilot plant. They are, however,

indicative of the type of product which can be isolated from the complex mixture represented by crude menhaden oil. As indicated in the diagram, six fractions have been isolated. The first fraction is one which amounts to two per cent of the original oil and is a concentrate of the color bodies present in the charge stock. The removal of these color bodies greatly favors the production of lighter colors in the other products. The second product, or sample No. 3, shown on the diagram, represents a high iodine value paint oil fraction which give indications of having many properties similar to tung oil and may be a replacement or an extender for this desirable and valuable paint oil product. This fraction amounts to about 35 per cent. Sample No. 4, amounting to roughly 53 per cent of the charge oil, is an intermediate iodine fraction which, it is believed, will find wide use in the drying oil field and represents an attractive replacement for linseed oil. Sample No. 5 is a concentrate of the free fatty acids which were present in the original oil and is an excellent soap stock starting material. Sample No. 6 is a stearine cut which may also be used as soap stock or in fields such as candle making, wax preparations, etc. The last sample is a vitamin fraction which contains practically all the vitamins present in the original oil which usually go to waste in other processing methods, but by this method, represents an extremely valuable poultry feeding oil, as well as a fairly concentrated source of vitamins A and D.

High quality drying oils for paint processors may be refined by the process from both marine and vegetable oils. Since the process takes low quality marine oils not currently used for this purpose, for example sardine, herring, and menhaden, this class of oil provides a linseed oil replacement in substantial volume. This lin-



seed oil replacement represents well over 50 per cent of the original quantity of oil processed. Many uses are indicated for these oils in formulating new protective coatings. In addition to the linseed oil replacement, the separation of sardine oil also produces a fraction of even more importance to the paint industry and one which sells in higher brackets other than the linseed oil replacement. This product, about 25 percent of the crude oil processed, is a high iodine number oil similar to the one isolated from menhaden oil, and it resembles tung oil.

The process is also useful to the paint industry in its applicability to vegetable oils. From soybean oil, the process removes color bodies, odor, free fatty acids, lecithin, sterols, tocopherols, and a substantial fraction suitable for salad oil, leaving finally a paint oil fraction having an enhanced iodine value over the charge oil and available also for the manufacture of a wide variety of other materials. Significant work being done in the direction of refining linseed oil shows that by removing a small color fraction from the oil, the process has produced a super refined product free of ash and of remarkably light color. If desired, this oil product can be separated into high and low iodine number fractions. In the soap industry, the process is notable for its ability to decolorize and upgrade tallows and greases to yield practically white products. Since color bodies are usually polyfunctional compounds, they are easily and completely removed by the process which is designed to selectively separate oils by virtue of variations in molecular weight or structure. With the elimination of caustic treatment, clay bleaching, and other decolorizing operations, as currently employed in chemical refining, the resulting soap fats are unimpaired, retaining their natural qualities. In the refining of animal fats, one major problem of soap processors in treating tallow has been the isolation of free fatty acids, as distinct from the fatty acids which are combined with glycerine as mixed with triglycerides. The process can readily achieve separation of free fatty acids from glycerides present in charge materials such as tallow and so make possible their direct use for soap manufacture or sale to other industries.

In the processing of low potency fish oils, vitamins A and D are isolated in addition to valuable glycerides which can be sold to the paint, soap, and other industries as mentioned in the menhaden oil example cited above. The picture is much the same with sardine body oil and, for example, 100 pounds of sardine body oil can be made to yield the following: 10 pounds of vitamins A and D concentrate, 35 pounds of drying oil fortifier, 45 pounds of linseed oil replacement, 3 pounds of stearine, 4 pounds of fatty acids, and 3 pounds of residual material. Vegetable oils, when refined by this method, yield maximum quantities of edible products rich in all their natural elements and with essentially all undesirable components which go to make up the odor and color removed. The application of the process to the refining of soybean oil may be cited as an illustration. First, the color bodies, in a highly concentrated form, are removed. The remaining oil may be then deodorized to give a very high yield of completely refined soybean oil, for example, 98 per cent of the crude. This fraction has been shown to have improved flavor and stability characteristics over any commercially available refined soybean oils being produced at the moment. If desired, other components can be recovered in highly concentrated form which include sterols, tocopherols, lecithin, etc. Complete details describing the process are available from the manufacturer.

M. W. KELLOGG COMPANY, GLYERIDE PROCESSES DIVISION, Dept. CP, 225 Broadway, New York 7, N. Y.

When inquiring specify CP 48 — see handy form pages 2-3

JANUARY, 1947

VICTOR *Chemicals*



Victor Phosphates play important and varied roles in the manufacture and enrichment of food products. Cereals, flour, prepared mixes, and food beverages, for example, are enriched with essential calcium, phosphorus, and iron by the addition of Victor Calcium and Iron Phosphates. Calcium phosphates also provide the necessary leavening acid in prepared flour mixes. Disodium phosphate serves as an emulsifier in the production of process cheese and condensed milk. ¶ Victor chemicals employed in the food industry include: **Ammonium Phosphates** (yeast, vinegar, yeast food), **Dicalcium Phosphate** (mineral fortification), **Disodium Phosphate** (process cheese, condensed milk), **Hicalcium Phosphate** (calcium-enriched flour and bread), **Iron Phosphates** (mineral enrichment), **Monocalcium Phosphate** (mineral supplement, leavening acid, baking powder), **Phosphoric Acid** (yeast, sugar, soft drinks, imitation jellies, gelatine), **Sodium Acid Pyrophosphate** (acid ingredient in commercial baking powders, prepared doughnut and cake flours), **Tricalcium Phosphate** (conditioning salt, soda, and powdered sugar).

VICTOR CHEMICAL WORKS, 141 W. Jackson Blvd., Chicago 4, Ill.
NEW YORK • KANSAS CITY • ST. LOUIS • NASHVILLE • GREENSBORO, N. C.
Plants: NASHVILLE • MT. PLEASANT, TENN. • CHICAGO HEIGHTS, ILL. • VICTOR, FLA.

When inquiring specify CP 49 . . . see information request blank, pgs. 2-3

Cr
Ni
AlCl₃
Mo
ZnCl₂

CATALYST ON YOUR MIND



Our work is the making of inexpensive supported catalysts. We do the job by first helping you solve reaction problems and then producing the catalyst that meets the specific need. Such cooperative effort will often solve tricky catalytic problems.

Take nickel. For petro-chemical users we developed a nickel catalyst on our Porocel* carrier. It gives high-activity performance in the conversion of methane and steam to carbon monoxide and hydrogen which, by means of the Fischer-Tropsch process, later become synthetic hydro-carbons. In the same field, we produced a nickel catalyst for the hydrogenation of unsaturated hydro-carbons—of codimers—both of which presented entirely different factors.

So, if a supported catalyst—be it Ni, Mo, Cr, AlCl₃, ZnCl₂, etc.—is on your mind, call on us. Our research staff, together with our plant facilities, have turned out efficient, inexpensive catalysts for others. Why not for you?

Outline the details to: Attapulugus Clay Company (Exclusive Sales Agent), Dept. E, 260 South Broad Street, Philadelphia 1, Pa.

* Pure, hard, uniform, bauxite granules—low in iron and silica content. Nickel uniformly put on up to 25%.



ACTIVATED BAUXITES • SUPPORTED CATALYSTS • CATALYST CARRIERS • ADSORBENTS AND DESICCANTS

When inquiring specify CP 50 . . . see information request blank, pgs. 2-3

Materials

Quick Baking Synthetic Finish

Protective, decorative coating for brass, cast iron, galvanized iron

USES — This synthetic resin product forms a protective and decorative coating over brass, cast iron, chromium, copper, galvanized iron, steel, tin and zinc.

FEATURES — Elastic characteristics, porcelain-like appearance. Resists adverse effects of gasoline, mineral spirits, 50% alcohol, oxalic and citric acids.

DESCRIPTION — Properly sprayed, this coating does not sag on vertical surfaces. The material will bake at high temperatures for a short time: 300 degrees F. for 20 minutes; 325 degrees for 10 minutes; 350 degrees F. for 5 minutes. Samples of Vitra Carlite are available in blue, red, green, black, white and clear.

HILO VARNISH CORP., Dept. CP, 42-60 Stewart Ave., Brooklyn 6, N. Y.

When inquiring specify CP 51 — see handy form pages 2-3

★

Insect Toxicant is Soluble in All Organic Solvents

25 micrograms of new chlorinated hydrocarbon insecticide per gram roach kills 96%

USES — Chlorinated hydrocarbon insecticide for houseflies, roaches, Colorado potato beetles, aphids, mosquitoes, adult squash bugs and grasshoppers, other insects.

FEATURES — Fast-acting: parallel tests using this material, known as "1068," in comparison with DDT and in some instances, with gamma-benzenesexachloride, indicate it to be several times more toxic in many specific cases. With the American roach, for example, 25 micrograms of 1068 per gram roach killed 76% out of a group of 25 roaches within 96 hours, as compared to 30% of a group of 10 roaches for a similar amount of DDT. Using these same figures, over a period of 120 hours 1068 caused 96% mortality, while DDT mortality remained stationary. A 4% mortality was observed within 24 hours as compared to none for DDT, other factors remaining the same. On the other hand, residual toxicity of 1068, as compared to DDT and gamma benzenehexachloride, indicated that DDT provided the most permanent toxic surface. Comparison was made by applying emulsified xylene solutions of the three compounds to the surface of wallboards which were then exposed at intervals over a period of 16 weeks to adult *Anopheles* mosquitoes. Increase in time required to produce a 100% knockdown as the treated surfaces aged was used as an index of loss in effectiveness by volatilization, absorption, etc. After 16 weeks' aging, time required to produce 100% knockdown had increased thus: gamma-benzenehexachloride, 10; 1068 compound, 3; DDT, approximately constant. It is believed that loss in residue effect is due to greater volatility. Compound 1068 was also found to be more toxic than DDT when applied as aqueous dispersions and sprays to spirea and pea aphids, Colorado potato beetles, adult squash bugs. Applied as acetone suspensions, emulsions and dusts to larvae of *Anopheles* mosquitoes, no significant differences were observed between either of the two compounds or gamma-benzenehexachloride. Using "large-group" Peet-Grady procedure, tests indicated that 0.2% DDT or 0.05% of 1068 compound were necessary to produce 95% mortality in 24 hours with adult house-

CHEMICAL PREVIEW

flies. Other characteristics of 1068: shows no tendency to irritate skin or mucous membranes; has complete miscibility with deodorized kerosine commonly used in insecticide formulations.

DESCRIPTION — Trade name: Velsicol 1068. A chlorinated hydrocarbon. May be obtained as a viscous, colorless, odorless compound which is soluble in all proportions in common organic solvents including crude and highly refined petroleum oils. May be formulated for use as an oil solution, oil emulsion, dust or dispersible liquids.

VELSICOL CORPORATION, Dept. CP, 120 E. Pearson St., Chicago 11, Ill.

When inquiring specify CP 52 — see handy form pages 2-3

Insulates Electrical Equipment, Wet or Dry, Up to 570° F.

Improved silicone varnish cures at ordinary baking temperatures without loss

USES — A practical silicone varnish for protecting electrical equipment operating continuously at temperatures up to 350° F. (175° C.) and subject to excessive moisture. Provides increased heat and moisture resistance in steel and textile mills, chemical plants, mines, railroads and hydro-electric plants without use of special equipment. For impregnating electrical machinery, coils, silicone insulating materials and similar purposes. Of value in almost every electrical shop.

FEATURES — Although the great heat and moisture resistance of silicone insulation for electrical machinery is well established both by test and actual performance under highly adverse conditions, these properties were heretofore not generally obtainable due to high temperatures required for baking. This obstacle is surmounted by a new material, DC 996, which cures at ordinary baking temperatures without sacrificing any of the heat and moisture resistance of earlier silicone varnishes. Withstands severe overloading for long periods. Retains high insulation resistance wet or dry, even after long exposure to temperatures of 300-400° F. Can be cured at 300° F., yet it will not be harmed even for long periods of baking at 500° F. The somewhat greater cost is said to be more than offset by operating economies and greater reliability. Will withstand intermittent exposure to temperatures as high as 570° F.

DESCRIPTION — DC 996 is applied by conventional dipping, vacuum impregnating or spraying. Supplied in viscosity suitable for most uses. To thin, manufacturer recommends V.M. and P. Naphtha. Waterproof and water repellent. Color, brown. Drying time at 150° C., one to three hours. Heat endurance at 250° C., over 100 hours. Less than 1% change in weight or volume was caused by immersion for seven days in dilute acids, concentrated hydrochloric acid, dilute and concentrated alkalies, mineral oil and salt solutions. Solvent: aromatic hydrocarbons. Has now been under test and in limited commercial use about 1½ years. For complete properties and specifications, also full instructions for application and curing, write for pamphlet, "How to Use DC 996." This literature is No. 1 of a Resin Series issued by the manufacturer.

DOW CORNING CORPORATION, Dept. CP, Midland, Mich.

When inquiring specify CP 53 — see handy form pages 2-3

JANUARY, 1947

General Chemical Research Presents



—second in its
new series of
**ALIPHATIC ORGANIC
FLUORINE COMPOUNDS**

genetron* 101 PHYSICAL PROPERTIES

Formula	CH ₃ • CClF ₂
Molecular Weight	100.51
Color	Colorless
Melting Point	—130.8° C
Boiling Point	—9.2° C
Density	1.194 at —10° C
Latent heat of vaporization	96 B.t.u./lb.

Vapor pressure (p.s.i. abs.):

—30° C	6.0
—10° C	14.7
10° C	31.2
30° C	59.0

Out of General Chemical's extensive fluorine research program in the field of organic chemistry comes *Genetron 101* . . . the second in a series of important aliphatic organic fluorine compounds.

This chlorinated derivative of ethylidene fluoride has a lower melting point and lower vapor pressures than the parent compound. Many of its applications are already under investigation by far-sighted manufacturers who recognize the industrial potentialities of *Genetron 101*: as a refrigerant . . . an aerosol dispersant in admixture with other Genetrans . . . a selective solvent . . . a dielectric . . . and as an intermediate in the preparation of various other organic chemicals.

The physical data here may suggest uses for this low boiling organic liquid which also merit your prompt investigation. For experimental samples, write General Chemical Company, Fluorine Division, 40 Rector Street, New York 6, N. Y.

*Trade Mark, General Chemical Company

GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK 6, N. Y.

Sales and Technical Service Offices: Albany • Atlanta • Baltimore • Birmingham • Boston
Bridgeport • Buffalo • Charlotte • Chicago • Cleveland • Denver • Detroit • Houston
Kansas City • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh
Providence • San Francisco • Seattle • St. Louis • Wenatchee and Yakima (Wash.)

In Wisconsin: General Chemical Wisconsin Corporation, Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver



When inquiring specify CP 54 . . . see information request blank, pgs. 2-3

FEATURED CHEMICALS in the PFIZER FAMILY

Ammonium Oxalate
Ascorbic Acid
Bi-Cap Flour Enrichment Mixtures
Bismuth Preparations
Calcium Gluconate
Citric Acid
Citrate Esters
Cream Tartar
Fumaric Acid
Gluconic Acid
Glucose Delta Lactone
Iron and Ammonium Citrates
Iron and Ammonium Oxalate
Iron Gluconate
Iron Oxalate
Itaconic Acid
Niacin
Niacinamide
Oxalates
Penicillin
Potassium Iodide
Potassium Oxalate
Riboflavin
Rochelle Salt
Sodium Citrate
Sodium Gluconate
Tartaric Acid
Thiamine

—and many other chemicals

no. 9 in a series:

THIAMINE

IN correcting and preventing certain dietary deficiencies, thiamine has established itself firmly — has earned its place among the major vitamins. Known popularly as Vitamin B₁, it is available from Pfizer in quality that's beyond question and quantities that range from 1 gram in a bottle to drums of 10 kilos.

Into the manufacture of Vitamin B₁ (Thiamine Hydrochloride USP) go the essentials in Pfizer's background . . . control, skill, trained personnel, experience—all applied to the maintenance of product purity and physical uniformity. Chas. Pfizer & Co., Inc., 81 Maiden Lane, New York 7, N. Y.;

444 West Grand Avenue, Chicago 10, Illinois; 605 Third Street, San Francisco 7, California.



Manufacturing Chemists Since 1849

Materials

Fatty Acid Amines and Their Salts Revise Emulsion Ideas

Cationic type emulsions possess unusual salt tolerance, surface acceptance of oil

USES — Armeens and Armacs (aliphatic amines and their acetate salts) make possible emulsions with characteristics which are said to be causing many chemical firms to revise their ideas on emulsions.

FEATURES — To understand proper use of amine acetates as emulsifiers, a new conception of electrolyte tolerance is needed. Such cationic emulsions tolerate sodium, aluminum, calcium and other metallic ions if the anions present are selected properly. Acetate salts seem well tolerated, chloride salts moderately so, while sulfate salts are incompatible. When introduced into a cationic emulsion of mineral oil, a strong solution of calcium acetate has little effect. Calcium chloride tends to make emulsion "cream" on standing, but calcium sulfate immediately breaks the emulsion. Salts of low molecular weight organic acids or monovalent inorganic acids will be tolerated in varying degrees, it is postulated, but salts of di or polyvalent inorganic acids are not tolerated. Other unusual characteristics are typical of emulsions made from these materials, such as surface acceptance of oil, "stay-put" qualities, exhaustion from emulsions, germicidal properties, etc.

DESCRIPTION — Armeen: trade name for a series of amines made from fatty acids. Armac: trade name of acetic acid salt made from these Armeens. For further information concerning these materials, request copy of bulletin entitled, "The Armeens and Armacs as Cationic Emulsifiers." This may be obtained by writing.

ARMOUR AND COMPANY, CHEMICAL DIVISION, Dept. CP, 1355 W. 31st St., Chicago, Ill.

When inquiring specify CP 55 — see handy form pages 2-3

★

Preformed Catalysts in Powdered, Granular, Tabletted And Extruded Form

For alkylation, oxidation, hydrogenation, etc.

USES — Preformed catalysts are used to carry out chemical reactions which could not be accomplished without the use of catalysts. They are used for such reactions as alkylation, oxidation, isomerization, dehydrogenation, hydroforming, hydrogenation, polymerization, dehydration and desulfurization. Preformed catalysts have been and are being used in the manufacture of aviation gasoline, motor fuel, synthetic rubber, explosives, plastics, pharmaceuticals and many other organic compounds.

DESCRIPTION — Preformed catalysts are produced in powdered, granular, tabletted and extruded form. The powdered catalysts range in mesh size from very fine materials of less than 300 mesh to coarse powder of approximately 20 mesh. The granular catalysts likewise vary in mesh size; however, granules of 2-8 mesh are ordinarily used. Tabletted and extruded catalysts are produced in sizes ranging from 1/8 in. to 3/8 in. in diameter.

HARSHAW CHEMICAL CO., Dept. CP, Cleveland, Ohio.

When inquiring specify CP 56 — see handy form pages 2-3

CHEMICAL PREVIEW

Resin Emulsions Are Substitutes for Animal Glue

50 adhesives used for leatherwork, woodwork, laminating, packaging

USES — This line of approximately 50 resin emulsion adhesives is designed to enable full production of quality goods despite increasing shortages of animal-type glues. One type, for example, is for bonding many combinations of leather, simulated leather, cloth, coated fabrics, cellulose acetate, Pliofilm, plain and saturated papers, and metallic foils in the leather goods, laminating and packaging industries. Another, a glue extender, is used for effective fabrication of set-up boxes. A third type is recommended as superior to animal glue in woodworking. Also many other types of resin emulsion adhesives.

FEATURES—Resin emulsions may be modified to meet the requirements of the customer. This is true with regard to drying speed, flexibility, degree to which they are waterproof or grease-proof, and actual surfaces adhered to. All may be thinned with water and run cold.

DESCRIPTION — This complete line of synthetic resin emulsion adhesives offers satisfactory substitutes for animal glue. They are readily available, and useful in many operations. Samples are offered for testing purposes. Manufacturer requests detailed information concerning materials to be adhered and the machine application involved. (This is a correction of an article which appeared in a previous issue of *Chemical Preview*, and contains additional facts.)
UNION PASTE COMPANY, Dept. CP, 1605 Hyde Park Ave., Hyde Park 36, Mass.

When inquiring specify CP 57
— see handy form pages 2-3

★

Describes Low Pressure Plywood Lamination

"Lap-Ply, A New Technique in Flat and Moulded Plywood Manufacture," describes superposed, offset method of low pressure lamination which may offer solution to production-cost limitations of present methods. 34 pages.

CASEIN COMPANY OF AMERICA, DIVISION OF THE BORDEN COMPANY, Dept. CP, 350 Madison Ave., New York 17, N. Y.

When inquiring specify CP 58
— see handy form pages 2-3

For more information on product at right, specify CP 59 . . . see information request blank between pages 2-3.

SHARPLES ETHYLAMINES

-- find application as reactants and solvents in many fields, including:

PETROLEUM
TEXTILE

RUBBER
PLASTICS

PHOTOGRAPHIC
EMULSION

-- are available in commercial quantities

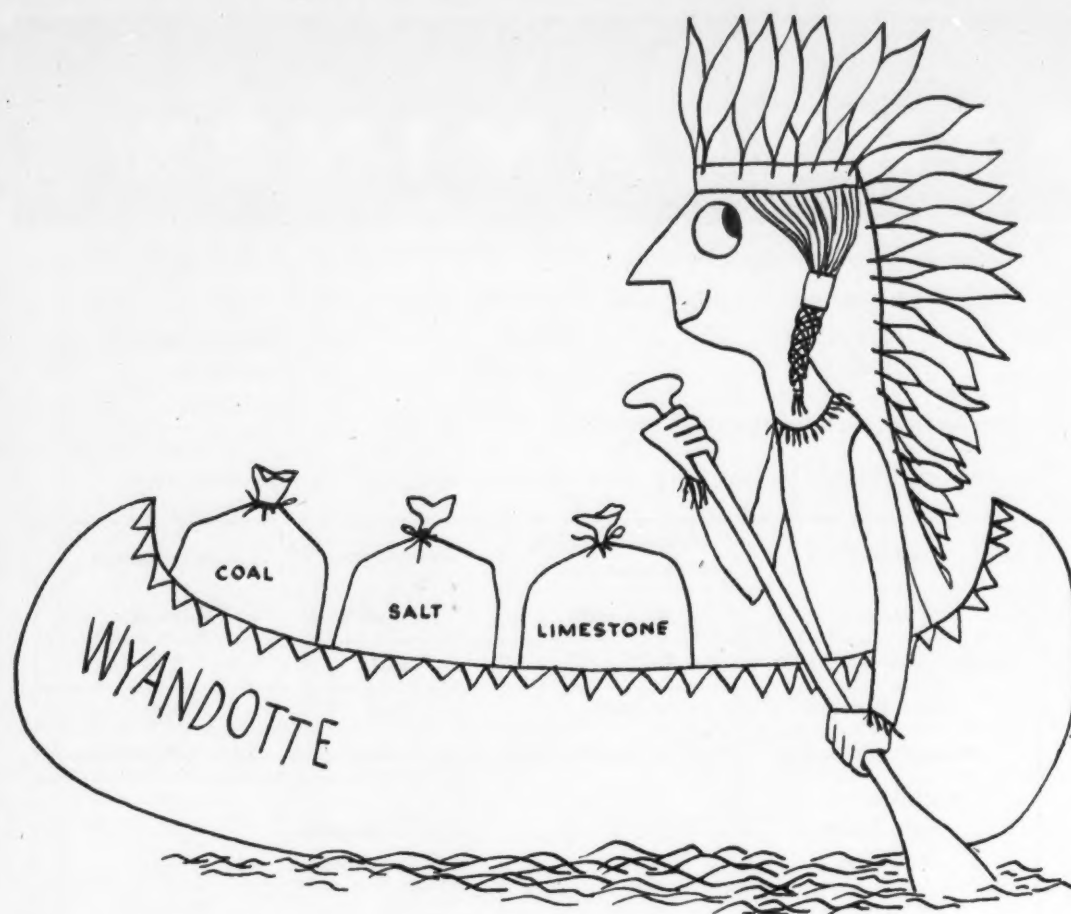
-- are of uniformly high quality and conform to the following specifications:

Specifications	Monoethylamine (70% aqueous sol'n)	Diethylamine	Triethylamine
Color	Water-white	Water-white	Water-white
Specific Gravity @ 20/20° C.	0.778-0.802	0.71	0.73
Water Insolubles	None	None	None
Minimum Amine Content	70.0% as Monoethylamine	98.0% as Diethylamine	98.5% as Triethylamine
Distillation:			
Initial boiling pt.	—	53.0° C. minimum	—
Final boiling pt.	—	59.5° C. maximum	—
95% Between	—	—	85°-91° C.

Samples and further information sent promptly on request.



SHARPLES CHEMICALS INC. PHILADELPHIA • CHICAGO • NEW YORK



Bringing home the makings

The American Indian had the right idea. He liked to have control of the source of the materials he needed for living—hunting grounds for his meat and skins . . . flint veins for his arrowheads.

Wyandotte Chemicals Corporation owns the sources of its basic raw materials for the manufacture of industrial chemicals. These basic raw materials are coal, salt and limestone.

Coal from Wyandotte-operated mines in Western Pennsylvania,

limestone from Wyandotte quarries at Alpena—all are transported steadily in Wyandotte ships to the vast plants at Wyandotte, Michigan. Salt is secured from deposits under company property at Wyandotte.

Thanks to this foresight, Wyandotte is assured—today and in the future—of adequate supplies for uninterrupted and efficient operation to the fullest extent of plant capacity. And the chemical industry knows that it can always depend on Wyandotte for superior products.



WYANDOTTE CHEMICALS CORPORATION

WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

When inquiring specify CP 60 . . . see information request blank, pgs. 2-3

Materials

Synthetic Resin Coating System Protects Ducts, Tanks, Piping

Consists of three compositions, each serving a special function; resists acids, solvents

USES — For providing coatings that are resistant to such acids as hydrofluoric, sulphuric, nitric, tannic, oxalic, citric, etc. Also solutions of sodium hydroxide, ammonium hydroxide, borax, calcium chloride, plating solutions, brine and other salt solutions. For applications involving various solvents: carbon tetrachloride, hydrocarbons in general, alcohols. Also vegetable oils, soap solutions, wines and liquors and various fruit and food acids. Surfaces and structures for which the material is suitable include ducts, hoods, fans, containers, tanks, (including those of cars and trucks) and piping.

FEATURES — High resistance to acids, solvents, vapors. The completed coating is tough, durable. Application is easy and repairs to the surface are made conveniently and effectively.

DESCRIPTION — This coating system consists of three resin compositions designated by series number 460-19A; 460-19B and 460-19C. The first is applied by brush and the other two with spray gun. The finish is not resistant to ketones, esters, ethers, aldehydes, some chlorinated hydrocarbons, phenol, etc. Where dilution of any of the three coatings is desirable a special thinner is available. The solvents used in the coatings are inflammable and toxic and care is to be taken during application to ventilate areas where work is performed. The coatings are furnished ready for application. Detailed information on Metalcote synthetic resin coating system on request.

AMERICAN RESINOUS CHEMICALS CORP., Dept. CP, Peabody, Mass.

When inquiring specify CP 61 — see handy form pages 2-3

★

Brown Pigment Features Fastness To Light And Alkali Resistance

For use in industrial enamels, trim paints, wallpaper and coated papers

USES — Provides brighter, cleaner, more durable shades of brown colors for industrial enamels, trim paints, wallpaper and other coated papers, textiles and possibly plastics. In providing new shades for industrial enamels and paints it is expected to show less tendency to chalk from outdoor exposure than standard iron oxide pigments. This brown pigment is also expected to find uses in emulsion paints, showcard colors. Linoleum, rubber and printing ink applications are to be investigated.

FEATURES — Extremely small particle size promises heat resistance to light for a wide range of product applications. Fastness to light and resistance to alkali indicates its suitability as a background color for wallpaper and coated paper coloring applications.

DESCRIPTION — Pigment is chemically hydrated ferric oxide. Since 1941 it has been undergoing field tests for use in automotive finishes. It is non-bleeding in the usual paint, enamel and lacquer finishes. It is now available to the manufacturing industries. Additional information on Auric brown on request.

E. I. du PONT de NEMOURS AND CO., INC., Dept. CP, Wilmington, Del.

When inquiring specify CP 62 — see handy form pages 2-3

CHEMICAL PREVIEW

P O T P

The "Proof of the Pudding" that Amersil's new engineering service pays off in practice, in large or small plants, having problems involving extreme temperatures and highly corrosive operating conditions is illustrated by the case histories shown.

Ask an Amersil engineer to explain the new integrated engineering service which

includes development, research, design, controlled manufacture of major silica ware units, selection and purchase of auxiliaries — all under one contract one responsibility.

ANNEALED
SILICA TRAYS
LASTS
a
minimum
of
10
TIMES
LONGER
*Name on request.

**60 TON
PLANT**
**2½ TONS
OF
22" B" ACID
AN HOUR
ON A
24 HOUR
BASIS
DESIGNED
BY AMERSIL**

AMERSIL COMPANY Inc.
CHESTNUT AVENUE ENGELHARD HILLSIDE 5, N. J.

When inquiring specify CP 63 — see handy form pages 2-3

B. F. Goodrich Chemical Company

has for sale these GOOD-RITE brand chemicals

In Commercial Quantities

Phenyl B Naphthyl Amine • Distilled • Commercial

Mixed Mono-and Diheptyl Diphenyl Amines

Isopropoxy Diphenyl Amine

p Hydroxy Diphenyl Amine

N-Nitroso Diphenyl Amine

Diphenyl p Phenylene Diamine

Di B Naphthyl p Phenylene Diamine

Monobenzyl Ether of Hydroquinone

Di Isopropyl Dixanthogen

Mixed Ethyl and Dimethyl Mercaptothiazoles

Mixed Aliphatic Thiazyl Disulfides

In Pilot Plant Quantities

Dibenzyl Ether of Hydroquinone

For additional information please write

B. F. Goodrich Chemical Company A DIVISION OF THE B. F. GOODRICH COMPANY
Department CG-1, Rose Building, Cleveland 15, Ohio

When inquiring specify CP 64 — see handy form pages 2-3

Materials

High Density Alloy Is Easy To Machine, Weld Or Braze

*Saves space in balancing applications;
relative density in comparison to
lead, steel, is impressive*

USES — These alloys feature high strength and high density and have found major applications as balancing weights where space is of prime importance. In their three general types these alloys are readily machinable and precise balancing can be attained such as is desired in gyroscopic rotors and governors.

FEATURES — The high density of these alloys becomes apparent by comparison with that of lead. Lead has a density of 11.3 gms. per cubic centimeter, equivalent to 185 gms. per cubic inch or .41 pounds per cubic inch. The new alloys are 17.3 gms. per cubic centimeter, 283 gms. per cubic inch, or .620 pounds per cubic foot. These alloys can be brazed or soldered by standard commercial methods.

DESCRIPTION — Produced by powder metallurgy Dense Alloy No. 112 is available in three general types. Type Y — composition largely Tungsten, Cobalt, Nickel and small percentages of other alloying ingredients. Type E — composition largely Tungsten, Cobalt, Silver, etc. Type P — composition largely Tungsten, Copper, Nickel. Available in round, square and special shapes and under certain conditions large billets or unusual shapes can be formed from single forms. Additional information on request.

CALLITE TUNGSTEN CORP., Dept. CP, 544 39th St., Union, N. J.

When inquiring specify CP 65 — see handy form pages 2-3

Metal Life Prolonged by Invisible Coatings and Rust Removers

Solvent-type all-purpose transparent coating has thickness less than 1/5000"; many other types

USES — Rust preventives, removers and protective coatings for indoor and outdoor protection of ferrous and non-ferrous metal parts, tools, equipment and structures from moisture laden air, noxious gases, fingerprints, acids and corrosive chemicals. Special agents for special uses. For automotive, agricultural, steel and metal processing and general industrial use.

FEATURES — Coatings vary in degree of hardness and other physical qualities. Liquid rust preventives are either solvent or oil type with underwriter-approved flash points. Contain non-toxic petroleum chemicals: can be used without special spray booths. Line includes a transparent, invisible, flexible dry coating with rust preventive qualities. This is a non-lacquer, water-repellant adhesive available in three grades: light, medium and heavy for highly finished parts, indoor storage and outdoor protection, respectively. Cold application. Solvent type has film thickness less than 1/5000".

DESCRIPTION — Trade name: Nox-Rust. Complete line of compounds includes dip, spray and brush applications, solvent, oil and grease type, also aluminum paint, plastic strip coating, thinner for cold-dip rust preventives, also cleaner. Literature mailed on request.

NOX-RUST CHEMICAL CORPORATION, Dept. CP, 2423-63 S. Halsted St., Chicago 8, Ill.

When inquiring specify CP 66 — see handy form pages 2-3

A natural wax that's a STAR PERFORMER

**MALMSTROM
WOOL WAX**

(LANOLIN)

available

**in unlimited quantities
AT PRICES BELOW
FORMER O.P.A. CEILINGS!**

In these days of shortages you can depend on MALMSTROM to offer you fine U.S.P. and Technical Grades WOOL WAX (Lanolin) — and it's available in unlimited quantities at prices below O.P.A. Ceiling!

MALMSTROM'S WOOL WAX (Lanolin) will help to give your preparations unusual selling features because of these outstanding advantages —

• A NATURAL WAX, absolutely free from glycerides.

• EXCEPTIONALLY ADHESIVE, clinging to surfaces with unusual tackiness, and affording a better protective coating with the retardation of rusting. Because of its clinging and protective features it was used extensively during the war to protect ordnance from rust.

• IMPROVES EMOLLIENT PROPERTIES OF FINISHED PRODUCT. Forms stable water-in-oil emulsions with 200% of water.

• EASILY SULPHURIZED AND PHOSPHORIZED for lubrication additives.



Write for methods of incorporating MALMSTROM'S WOOL WAX (Lanolin) into your preparations. Samples and prices upon request.

N. I. MALMSTROM & CO.

America's Largest Processor of Wool Fat & Lanolin
147 LOMBARDY STREET, BROOKLYN 22, N. Y.
30 W. WASHINGTON STREET, CHICAGO 2, ILL.
Office and Warehouse

When inquiring specify CP 67 — see handy form pages 2-3

Materials

Coal Tar Derivative May Have Future in Synthetics

Nitrogen-containing compound is a liquid over 26.5° C., boils at 243.3° C.

USES — Isoquinoline is a chemical utilized commercially in the production of quaternary derivatives. It is suggested as a starting raw material for the manufacture of new pharmaceuticals, pest-control agents, disinfectants and textile chemicals.

FEATURES — This compound is said to offer excellent opportunities for the manufacture of new synthetics and may afford economies in the preparation of derivatives formerly made by ring-closure procedures.

DESCRIPTION — A nitrogen-containing compound present in coal tar and only recently recovered as a relatively pure material. As produced commercially, it has a minimum melting point of 20° C., but lends itself readily to further purification. Isoquinoline is a liquid above 26.5° C., its true freezing point, and boils at 243.3° C. (pure compound). It is relatively insoluble in water, but soluble in dilute mineral acids and in many organic solvents. The compound weighs about 9.15 lbs. per gallon, and has a flash point of 225° F. (Pensky-Martens Closed Cup). It is shipped in 55 gallon drums (returnable) and five-gallon pails. For additional information, address the manufacturer.

KOPPERS COMPANY, INC., TAR PRODUCTS DIVISION, Dept. CP, Pittsburgh, Pa.

When inquiring specify CP 68
— see handy form pages 2-3

★ Tool Steel Rounds Up To 12" Produced By New Method

Larger diameters now freed from center carbide segregation

USES — This new method permits forging large diameter high alloy tool steel rounds larger than four inches.

FEATURES — High speed and high alloy tool steel rounds up to 12 inches in diameter can be successfully forged, with a reduction of residual strains, the elimination of center bursts and assurance of uniform cross sectional carbide distribution. Two long standing related difficulties that prevented the successful production of high speed and high alloy steel

FOR YOUR INFORMATION

**SYNTHETIC
CLEANSING
AGENTS**

**CHEMICALS
FOR
PENICILLIN**

**WOOD
PRESERVA-
TIVES**

CHLORINE

Plant Expansion Under Way

The Civilian Production Administration recently approved a \$4,000,000 Monsanto expansion program which involves four separate projects—added capacity for the production of chemicals for penicillin, synthetic cleaning agents, Santophen 20* (Monsanto's pentachlorophenol, technical) and chlorine . . . It is expected that this new capacity will be ready for operation during the latter part of 1947.



One Less Variable in Tanning with the Exans*— Monsanto's Synthetic Vegetable Tans

The control of quality made possible in the manufacture of synthetic products assures the tanner that he will produce a uniform product with the Exans.

In addition to uniformity, the Exans produce leather with exceptionally fine, tight grain, light color and a good "break." They are compatible with other extracts and processes—they speed production through faster penetration—they work well as retans on chrome-tanned leathers. The Exans are made from available domestic raw materials.



Revised Phosphoric Acid Bulletin Now Available

Latest information on Monsanto's phosphoric acid is included in Bulletin P-26. Copy will be mailed on request—address Phosphates Division, Monsanto Chemical Company, St. Louis, or any Monsanto District Office.

THE AROCLORS

(Chlorinated Biphenyls)

Unusually versatile series of Monsanto Chemical Compounds

The Aroclors* are well established in the field of synthetics because their unique properties meet requirements not filled by materials heretofore available. They range in form and appearance from mobile oily liquids to fine white crystals and transparent resins. They are non-oxidizing, permanently thermoplastic, of low volatility and non-corrosive to metals. They are not hydrolyzed by water or alkalies—viscous liquids and resins will not support combustion when heated alone.

The Aroclors are heavier than water—possess great adhesiveness, especially on smooth surfaces—have remarkable penetrating power—are water repellent and flame resistant. Their ability to withstand extreme pressure is unusual.

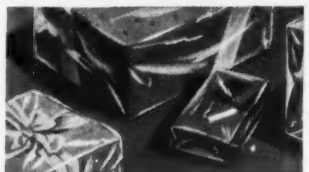
In addition to the applications illustrated, the Aroclors are useful for:

Power Transmission . . . Aroclors furnish unusually high torque power transmission in fluid drives for trucks, buses and ships.

High-Temperature Lubrication . . . Nonflammability of Aroclors is ideal for governor systems and heavy-duty air compressors.



Adhesive Coatings . . . Aroclors give unusual smooth-surface adhesiveness to pressure-sensitive industrial and masking tapes.



Ethyl Cellulose . . . Nitro Cellulose . . . Aroclors impart weather resistance, luster, adhesion, flexibility and decrease in burning rate.

Extreme-Pressure Lubrication . . . Use of Aroclors in rolling stainless steel and chrome iron, prevents surface seizure and scoring.

Submerged Lubrication . . . Heavier than water, Aroclors are stable lubricants for bridge rollers and underwater equipment.

Moisture Proofing . . . Aroclors combine readily with waxes, oils, resins, to produce moisture-resisting impregnating compounds.

Vinyl Resins . . . Compatible with all the vinyl resins, Aroclors are used to add many desired properties to finished products.

Rubber . . . Rubber Substitutes . . . Milled into rubber, Aroclors impart permanent tackiness and adhesion; also reduce brittleness.

Chlorinated Rubber Finishes . . . Used as plasticizers for chlorinated rubber, Aroclors add both toughness and flexibility; resist acid.

Plastic Mold Lubricant . . . Use of Aroclors produces great improvement in ease of molding; also in appearance of finished products.

Paints . . . Varnishes . . . Aroclors contribute excellent durability and varying degrees of flexibility or hardness in quick-drying paints.



Heat Transfer Medium . . . Aroclors do not generate extreme pressures at high temperatures in liquid heat transfer equipment.



Send for bulletin No. P-115, describing physical properties and suggested applications of the Aroclors. Address Phosphates Division, Monsanto Chemical Company, St. Louis, or any Monsanto District Office.

News of Monsanto Chemicals and Plastics for the Process Industry January, 1947

MONSANTO INTERMEDIATES

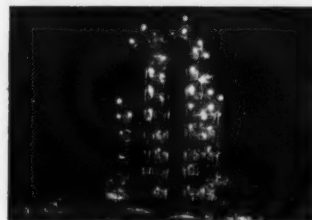
While some Monsanto Intermediates are still in critical supply, experimental samples of many of them are available together with prices. If you are interested in any of the intermediates listed below, we suggest you contact the Organic Chemicals Division, Monsanto Chemical Company, 1700 South Second Street, St. Louis 4, Missouri—or any Monsanto District Office.

ortho-Aminobicyclohexyl, Refined	ortho-Nitrobiphenyl, Technical
ortho-Aminobiphenyl, Technical	meta-Nitrochlorobenzene
ortho-Anisidine	ortho-Nitrochlorobenzene
para-Anisidine	para-Nitrochlorobenzene
Benzenesulfonic Acid, Technical	para-Nitrophenol
Benzoic Acid, Technical	ortho-Phenetidine
Benzotrichloride	para-Phenetidine
Benzyl Chloride	Phenol, U.S.P.
meta-Chloroaniline	Phenolsulfonic Acid, 65% and 70%
ortho-Chloroaniline	Phosphorus Oxychloride
para-Chloroaniline	Phosphorus Trichloride
ortho-Chlorophenol	Phthaloyl Chloride
para-Chlorophenol	Salicylic Acid, Technical
Cyclohexylamine	Sodium Benzoate, Technical
2,5-Dichloroaniline	Thiourea
2,5-Dichloronitrobenzene	para-Toluenesulfonamide
2,4-Dichlorophenol	Toluenesulfonic Acid, 94%
Dicyclohexylamine	para-Toluenesulfonyl Chloride
2,4-Dinitroaniline	ortho-Vanillin (2-Hydroxy-3-methoxybenzaldehyde, Technical)
2,4-Dinitrochlorobenzene	ortho-Veratraldehyde (2,3-Dimethoxybenzaldehyde, Technical)
ortho-Nitroaniline	

First in United States HEXAETHYL TETRAPHOSPHATE Garden and Orchard Insecticide

With Monsanto's introduction of Hexaethyl Tetraphosphate to the United States, agriculture has a powerful new weapon for the control of aphids, "red spider" and citrus mites—one that shows great promise against a number of other damaging insect pests in field tests now being conducted.

Particularly valuable in the treatment of fruits and vegetables, this newly introduced insecticide will decompose within a matter of days after application, and thus may not have to be washed off food products before marketing. This offers a distinct advantage over many insecticides since the decomposition products are thought to be non-toxic.



1947 Lustron* Production Boosted to 80,000,000 Pounds!

The recent purchase for \$9,550,000, of the Texas City Styrene Plant is only one phase of Monsanto's greatly expanded facilities for production of Lustron polystyrene plastic. Estimated capacity for 1947 will be 80,000,000 pounds—300% greater than Monsanto's 1946 styrene production and larger than the entire production of thermoplastics by all materials manufacturers in 1941. It is interesting to note that the present base price of 25¢ per pound for the crystal molding polymer (in carload quantities) compares with a price of 72¢ per pound, effective in 1939 when Monsanto commenced production of styrene plastic. In addition, Monsanto's new Canadian facilities which will serve Canada and the United Kingdom, are now in production.



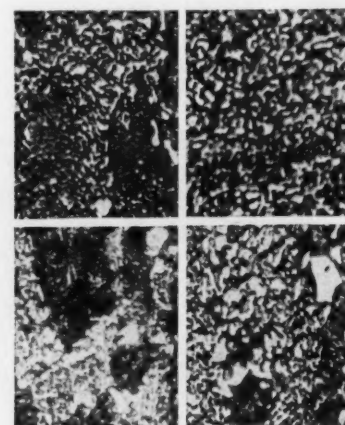
Monsanto Chemical Company, 1700 South Second Street, St. Louis 4, Missouri . . . District Offices: New York, Chicago, Boston, Detroit, Cleveland, Cincinnati, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

*Reg. U. S. Pat. Off.

Materials

in diameters of larger size are overcome. These were (1) inability to obtain proper refinement of the structure or proper carbide distribution by means of hot working, either by conventional pressing or hammer swaging methods and (2) the unusually high scrap loss due to center rupture or bursts, occurring in the transition from square to round shapes.

DESCRIPTION — The restrictions of size range as imposed by the aforementioned difficulties were a distinct penalty upon both the steel producer and the fabricator of large tools. The new method employs a constraining action that restricts sidewise spreading of the billet. This serves to eliminate center rupture and imparts a kneading action throughout the entire cross section. The kneading ac-



Sectional views compare rounds produced by old methods and "Vee-Oginizing."

tion refines the structure to a degree heretofore not possible with conventional hot working methods. This new process is known as "Vee-Oginizing". The greater uniformity of carbide distribution achieved by the new method is illustrated in the microstructures. These sections illustrate: (1) Upper left — section of outside portion of high speed steel round processed by conventional methods; (2) Lower left — center portion of same bar. (3) — Upper right — section of outside portion of round processed by new method; (4) Lower right — center portion of same bar. (Magnifications 250X) The Barium Steel & Forge Co., Canton, O. and the Jessop Steel Co. collaborated in the development of this process.

JESSOP STEEL CO., Dept. CP, Washington, Pa.

When inquiring specify CP 69
— see handy form pages 2-3

For more information on product at left, specify CP 70
. . . see information request blank between pages 2-3.

Chlorine, Sulfur or Thionyl Group — ...all from Thionyl Chloride

IF you are interested in introducing chlorine, sulfur alone or sulfur in combination with oxygen, into organic or inorganic compounds, you should investigate the use of Hooker Thionyl Chloride.

In this one inorganic chemical, these three groups are readily available. Sulfur dioxide and hydrogen chloride, the gaseous byproducts of its reaction, are easily removed. Excess thionyl chloride may be recovered by distillation.

High purity of Hooker Thionyl Chloride has stimulated use of this chemical in organic synthesis. Freedom from side reactions and good yields of a purer product are concomitants of this high purity.

Thionyl Chloride is a clear, pale yellow to red liquid with a sharp irritating odor. It fumes when exposed to moist air and requires some special care in handling and storage. It is available in technical and refined grades. Principal properties are given below:

Formula	SOCl_2
Molecular Weight	119.0
Specific Gravity, 15.5°/15.5°C.	1.644
Boiling Range	
Tech	72° to 79°C.
Refined	75° to 78°C.
Pour Point	Below -75°C.
Flash Point	None
Fire Point	None

Technical Data Sheet No. 718 gives more complete physical and chemical data and analysis as well as suggestions for handling. Bulletin No. 328A, "Hooker Chlorinating Agents," is also available to those interested. Your name and the bulletin numbers on your letterhead will bring you this descriptive literature.



"Artists in Lead Burning" design and fashion the lead equipment required for processing and handling many of the Hooker Chemicals.

HOOKER ELECTROCHEMICAL COMPANY

15 Forty-Seventh St., Niagara Falls, N. Y.
New York, N. Y. • Wilmington, Calif. • Tacoma, Wash.

HOOKER CHEMICALS

Caustic Soda Paradichlorobenzene Muriatic Acid Chlorine Sodium Sulfide Sodium Sulphydrate

When inquiring specify CP 71 . . . see information request blank, pgs. 2-3

Materials

Coating Resists Acids and Lye Solutions, Brines and Alkalies

Application gives tough, hard, elastic finish

USES — Can be used for coating inside and outside surfaces of concrete, steel, wooden tanks used for corrosive solutions, brines, and alkalies. It will protect walls, woodwork or steel structures in food processing plants, wineries and breweries.

FEATURES — This coating will withstand a maximum temperature in air or vapor of 220° F. Maximum submerged temperatures approach 150° F. It will not crack under a temperature as low as 20° below zero F. Application results in a tough, hard, elastic finish, which after air or force drying, is tasteless and odorless.

DESCRIPTION — Application by spraying is recommended, but it may be applied by dipping, flowing or roller coating. A specially prepared formulation is available for baking-on process. Formulation is based on a synthetic thermoplastic resin which because of its low water absorption and inert properties inhibits corrosion. Packaging is in 1, 5, and 10 gallon cans and 55 gallon drums. Descriptive literature is available.

LITHGOW CORPORATION, Dept. CP, 333 W. 40th Place, Chicago 9, Ill.

When inquiring specify CP 72 — see handy form pages 2-3

★

Solution In Dimethyl Phthalate Aids Use Of Diacetyl Peroxide

Extreme shock sensitivity of solid crystalline product not present in 30% solution

USES — Useful to polymerize monomeric materials such as methyl methacrylate, vinyl compounds and others. The highly active free radicals derived from the acetyl peroxide sometimes permit the use of comparatively small percentages of the peroxide solution to catalyze polymerization of a given monomer. The non-volatile solvent itself is a frequently used plasticizer. Acetyl peroxide solutions have also been found useful as bleaching agents, particularly for the treatment of vegetable oils containing objectionable chlorophyll and carotenoid substances.

FEATURES — Ease of solubility; freedom from non-volatile decomposition products, high activity and little gas formation in bulk polymerization. Generally speaking, the solution of acetyl peroxide in dimethyl phthalate will show the same solubility behavior as the dimethyl phthalate itself. The solution is freely soluble in many solvents and in many monomeric substances such as methyl methacrylate and others. The extreme shock sensitivity of the solid crystalline acetyl peroxide is non-existent in the 30% dimethyl phthalate solution.

DESCRIPTION — Dimethyl Acetyl Peroxide solution offers a practical way to make use of the valuable properties of diacetyl peroxide. Physical data on acetyl peroxide solutions in dimethyl phthalate: Composition — Diacetyl Peroxide 30%; Dimethyl Phthalate 70%. Ash, approx. 2 p.p.m. Active oxygen 4.0%. Specific gravity 1.182. Flash point — open cup 45° C. Color and form — crystal clear liquid. Odor — pungent. Storage below temperatures of 0° C. should be avoided. Preferred storage temperature is about 5° C. Various tests with the peroxide resulted in no explosions but it is recommended that conditions giving rise to formations of crystals in appreciable amounts should be avoided. The most satisfactory mate-

Materials

rial for any use in connection with acetyl peroxide solutions is pyrex glass. If contact time is short, stainless steel, pure tin and high purity aluminum will be satisfactory. These should not be used under conditions where prolonged contact with the solutions might take place. The container question becomes less important once the peroxide solution has been incorporated into a reaction mixture, a solvent, oil, etc.

Various safety precautions should be observed in handling the solutions. Assistance in connection with problems relating to storage, handling or use of this organic peroxide is offered.

BUFFALO ELECTRO-CHEMICAL CO., INC., Dept. CP, Station B, Buffalo 7, N. Y.

When inquiring specify CP 73 — see handy form pages 2-3

★

Odorless Mildew-Proofing Agent Guards Perishables in Shipment

40% active fungicide solution protects paper, textiles, leather; study storage bin uses

USES — Odorless mildew-proofing compound for treating textiles, cotton fabric, paper, leather goods and similar perishables in storage or shipment. Applications under study also include its use in dry cleaning formulations, treatment of storage bins for food and other products, fruit and vegetable baskets and crates. Treatment of warehouses and cold storage rooms in which fruits, vegetables and meats are stored has been suggested. Used during wartime to protect stitching on army tents and other equipment from the destructive fungi found in jungles. Also effective as a preservative in cosmetic preparations and shows possibilities, in combination with a water-soluble insecticide, for combined protection against mildew and moth damage. Prevents much of the damage caused by fungus growths in warm, humid weather.

FEATURES — Textile fabric is ordinarily treated so as to pick up from 1/2 to 1% its own weight of active ingredients. After processing and drying, there is no noticeable odor, and this is true even though fabric is wet later. Behaves in same manner when applied to paper as to cotton fabric, since both are essentially cellulose bases. Strongly absorbed by cotton or paper and cannot be removed by leaching with running water. Non-volatile, not readily decomposed. Effective against wide variety of destructive fungi. Contains 40% active fungicide. In tests, samples of vegetable-tanned leather were swabbed with solutions of the material in various combinations, dried, suspended in a moist chamber and inoculated with leather-attacking fungus. Untreated samples developed large fungus growths within three days, but no fungus growth appeared on treated samples throughout 21-day test period.

DESCRIPTION — Hyamine 3258. A light tan paste which may be made fluid by heating to 80° F. A water dispersible quaternary ammonium pentachlorophenate combining synergistically the anti-fungal properties of quaternary ammonium salts with those of the chlorophenates. Typical mildew-proofing formation consists of approximately 10% Hyamine 3258 with small amount of isopropanol and a wetting agent such as Triton X-155 all in water solution.

ROHM & HAAS COMPANY, Dept. CP, Philadelphia, Pa.

When inquiring specify CP 74 — see handy form pages 2-3

JANUARY, 1947

COMMERCIAL SOLVENTS CORPORATION
announces

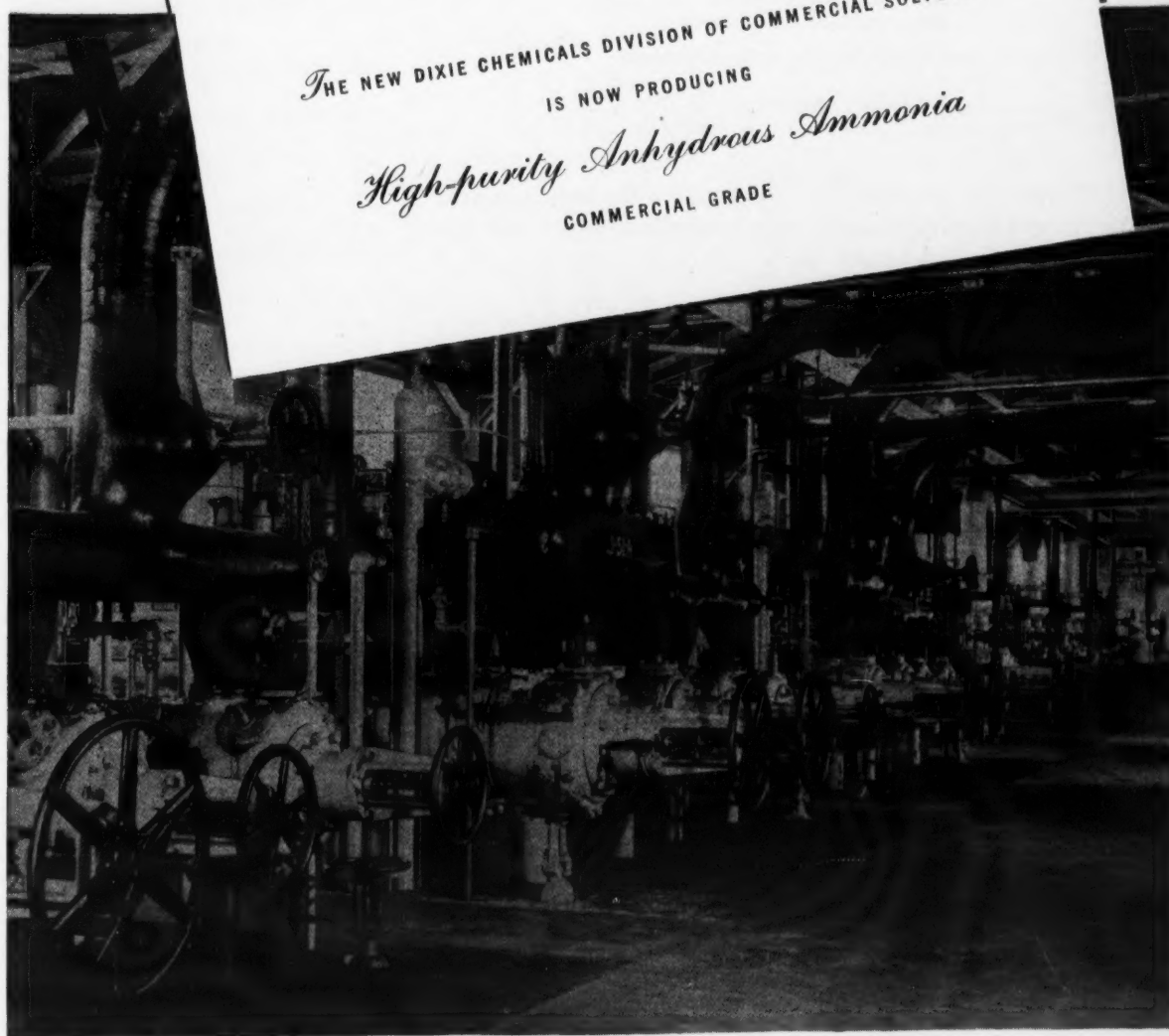
the purchase of the
DIXIE ORDNANCE WORKS

at Sterlington, Louisiana
from the War Assets Administration

★

THE NEW DIXIE CHEMICALS DIVISION OF COMMERCIAL SOLVENTS
IS NOW PRODUCING

High-purity Anhydrous Ammonia
COMMERCIAL GRADE

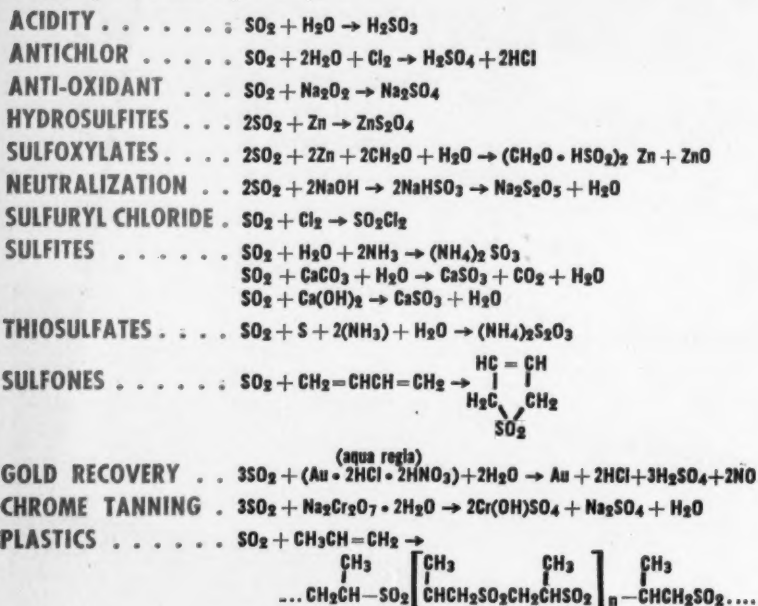


When inquiring specify CP 75 . . . see information request blank, pgs. 2-3

ANSUL

SO₂ IN INDUSTRY

The versatility of Ansul Liquid Sulfur Dioxide in industrial practices is illustrated by the following examples:



In addition Ansul Liquid Sulfur Dioxide is being currently used as a bleaching agent • purifier • preservative • solvent • fumigant • protective atmosphere in magnesium fabrication • refrigerant and in polymerization, etc.



Consult Ansul Technical Staff relative to the development of these and other applications for SO₂ in your processes. Write for treatise on Liquid Sulfur Dioxide and request bulletins describing specific Sulfur Dioxide applications.

For your METHYL CHLORIDE applications Use ANSUL METHYL CHLORIDE

ANSUL CHEMICAL COMPANY
 INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.
 Eastern Office: 60 E. 42nd St., New York City



PHYSICAL PROPERTIES

Chemical formula	SO ₂
Molecular weight	64.06
Color (gas and liquid)	Colorless
Odor	Characteristic, pungent
Melting point	-103.9° F. (-75.5° C.)
Boiling point	14.0° F. (-10.0° C.)
Density of liquid at 80° F.	(85.03 lbs. per cu. ft.)
Specific gravity at 80° F.	1.363
Density of gas at 0° C. and 760 mm.	2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature	314.82° F. (157.12° C.)
Critical pressure	1141.5 lbs. per sq. in. abs.
Solubility	Soluble in water
Purity	99.9+% (by wt.) SO ₂ (H ₂ O less than 0.01%)

*REG. U.S. PAT. OFF.

Materials

Transparent Plastic Checks Harmful Rays

Useful as food foil, laminate, yarn and industrial lenses

USES — Plastic material for transmitting visible light only, at same time selectively absorbing light waves known to be harmful in overdose, as infra-red and ultra-violet, whether emitting from molten metal, lamp filament, flame or sun. Applications include thin packaging foil for foods; as a laminate between glass or plastic sheets; industrial goggles and windows of various densities; as a light, easily handled insulating material; for food and candy store windows and display cases; awnings; auto and boat windshields; woven beach fabrics, sun glasses and aviator's goggles; camera filters, lamp screens and yarn for textiles.

FEATURES — Transmits approximately 84% visible light with practically no ultra-violet transmission between 200-400 milli microns and about 15% infra-red transmission from 750-1500 mmu. Experimental evidence indicates very little transmission of frequencies between 1500 and 2000 mmu. Efficient eye protection at less expense. Will be available in standard industrial goggle lens sizes. Can be supplied in light yellow Type I color with 85% approximate transmission of incident light computed with reference to human visibility curve, or in neutral Type II shade with 50% approximate transmission, computed on same basis. Both types available in thicknesses from .002" to .010" in continuous rolls up to 48" wide. In thicknesses greater than .010" and up to 1/8", both types supplied in standard 20" x 50" sheets. Lets in light, stops heat.

DESCRIPTION — Infropake Plastics. A method of laying up thin flakes of transparent plastic so as to form a material opaque to infra-red and ultraviolet rays. Infropake Plastics resembles other commercially available plastics in its working properties, having approximately same heat and flow characteristics as cellulose acetate. It softens at approximately 250° F. can be press polished, formed or bent in any manner in which regular plastics are handled. Developed as result of wartime demand for aviator's goggles to determine location of enemy planes hidden in path of sun's rays. Write for literature. Or, if you have a problem for which this product seems to be the solution, explain your requirements in complete detail.

THE CHAS. FISCHER CO., Dept. CP, 749 Atlantic Ave., Brooklyn 17, N. Y.

When inquiring specify CP 77
 — see handy form pages 2-3

WAXES

CARNAUBA OURICURY CANDELILLA

CRUDE AND REFINED

DOMESTIC OZOKERITE AND CERESINE

Write for Bulletin C P

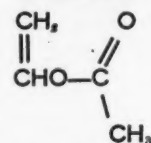


DISTRIBUTING & TRADING CO.
 444 MADISON AVENUE • NEW YORK 22

When inquiring specify CP 78 — see handy form pages 2-3

UNPOLYMERIZED VINYL ACETATE

(STABILIZED)



Boiling Range 71.8° to 73° C.

Vinyl Acetate can be polymerized to form resins with exceptional bonding qualities for wood, glass, metal and fibre

Containers:—

410 lb. drums; 62,500 lb. tank cars
 For further information write to:

NIACET
 CHEMICALS DIVISION

Sales Offices

926 Niagara Building • Niagara Falls, N. Y.

When inquiring specify CP 79 — see handy form pages 2-3

CHEMICAL PREVIEW

When inquiring specify CP 76 — see handy form pages 2-3

Materials

Bonds Between Substances of Different Thermal Expansion

Industrial engineers will be interested in 4665 Cement, versatile industrial adhesive which, it is claimed, opens new fields in fabrication technique. This material, which bonds between two porous, two non-porous, or non-porous and porous surfaces, is described in an eight-page booklet, which recommends it "especially under conditions where a bond must be maintained between substances having widely differing coefficients of thermal expansion or dimensional changes caused by fluctuations in humidity." Range of materials to which 4665 adheres includes glass, metals, woods, plastics, plaster and wallboard, concrete, ceramics, fabrics, vulcanized rubber, leathers and papers. May be applied by brush, knife or roller coating, dipping. Contains 27.5% solids. Dried adhesive film resists dilute alkalis, acids, corrosive salt solutions, mildew and fungi. Not attacked by petroleum or coal-tar solvents, lubricating oils, alcohols, ethylene glycol or vegetable oils, but is soluble in ketones or ester solvents. Requires no catalyst or special preparation for use. Six months' minimum package stability is claimed, with no tendency to gel within a year. Booklet describes application, bonding techniques including cold or wet, solvent activated, thermoplastic, hot roll or hot press, preheated and oven methods. Insoluble in water, although bond strength is lowered by continued immersion, yet regained after removal. Write for booklet A-6031.

E. I. duPONT de NEMOURS & COMPANY, Inc., FINISHES DIVISION, Dept. CP, Wilmington 98, Del.

When inquiring specify CP 80
— see handy form pages 2-3

★

Button "Fires" CO₂ Extinguisher

Two catalog sections describe (1) industrial fire hose, including size and weight tables on canvas or rubber-covered types, (2) 15-lb. carbon dioxide fire extinguisher with pistol-grip, push-button action. Fully illustrated. Section 12035 describes extinguisher; 3750 describes hoses. To obtain this literature, write.

THE B. F. GOODRICH COMPANY, Dept. CP, Akron, O.

When inquiring specify CP 81
— see handy form pages 2-3

For more information on product at right, specify CP 82 . . . see information request blank between pages 2-3.

IF WATER IS ONE OF YOUR RAW MATERIALS . . . AFFECTS YOUR PRODUCT OR PROCESS IN ANY WAY . . .

New **FILT-R-STIL** Water Demineralizing Unit **DELIVERS**

MINERAL-FREE WATER TO HELP YOU . . .

- Improve Product Quality
- Lower Processing Costs
- Simplify Operations

Now, thanks to Cyanamid's FILT-R-STIL Demineralizing units, you can have quality-controlled water day-in and day-out . . . water which is chemically equal or superior to distilled. FILT-R-STIL Demineralizers are economic, too. The IONAC* Resins used make the process comparable to a simple cold filtration. The added expense of heat, cooling water and periodic dismantling have all been eliminated.

All standard units (capacity from 5 to 1200 or more gallons per hour) are compact and completely self-contained. And the ease with which they're installed, operated and maintained further assures long, efficient service and reliable results. For complete data on FILT-R-STIL Demineralizers and assistance in solving your water problems—mail coupon today.

AMERICAN CYANAMID COMPANY

ION EXCHANGE PRODUCTS DEPARTMENT
30 ROCKEFELLER PLAZA
NEW YORK 20, N. Y.

*Reg. U. S. Pat. Off.

American Cyanamid Company,
Ion Exchange Products Dept. 10
30 Rockefeller Plaza, New York 20, N. Y.
Send me your free booklet on FILT-R-STIL.
Briefly, my water problem is of the following nature:

C.P.1

Name _____
Company _____
Address _____
City _____ State _____

How a FILT-R-STIL Demineralizer works . . . Units consist of four "beds" of IONAC* Resins which, by principle of ion exchange, successively remove the dissolved minerals from water. Water is fed through a conductivity cell which indicates quality of water being produced. When resins are exhausted, a regenerative system restores units to full efficiency.



Pulsation dampeners installed on a 1500 and 4000 lb. discharge line

Dampener Permits Accurate Metering of Pulsative Flow

Converts pulsative flow of air, gas or vapor into a steady stream



USES — Pulsation dampeners may be used in air, gas or vapor lines to eliminate pulsations.

FEATURES — Permits accurate metering by the orifice method. Also dampens out pressure pulsations, providing accurate pressure gauge readings.

DESCRIPTION — To keep metering errors at a minimum, many systems have been used. The simplest of these consist of pinching valves in the meter lead lines. In some cases volume chambers and orifice plates have been installed ahead of meter runs. Volume bottles are often used on both the discharge and suction sides of compressors. Their volume often varies over quite a range, depending on the pressure and compression ratio involved. Most of these volume bottle installations improve the ill effects of pulsation but in general do not reduce them to a minimum because of the large volumes required to do this. The volume and consequent size required for a satisfactory pulsation reduction in the higher pressure services is extremely uneconomical and is often impractical to locate.

The pulsation dampener, designed on a filter principle, has been universally used to correct pulsation problems and consequently their secondary effects by converting the pulsative flow into a steady flow. Being a filter device, it offers only a high resistance to a pulsative flow

and permits a steady gas stream to pass through it with very low pressure drop. In most cases, it is practical to design dampeners for a pressure drop of about $\frac{1}{2}$ percent of the operative pressure that are capable of removing in excess of 95% of the pulsation peaks. With the elimination of this high percent of pulsations it naturally follows that any errors in metering due to pulsations are automatically eliminated by the removal of the pulsations. Dampeners are designed for specific requirements. Details may be secured from the manufacturer.

THE FLUOR CORPORATION LTD., Dept. CP, 2500 S. Atlantic Blvd., Los Angeles 22, Cal.

When inquiring specify CP 83 — see handy form pages 2-3

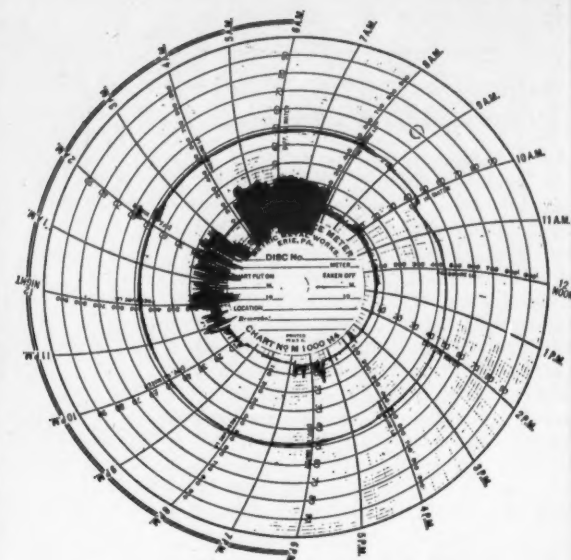


Chart shows effect of pulsative flow on orifice metering before installing dampener

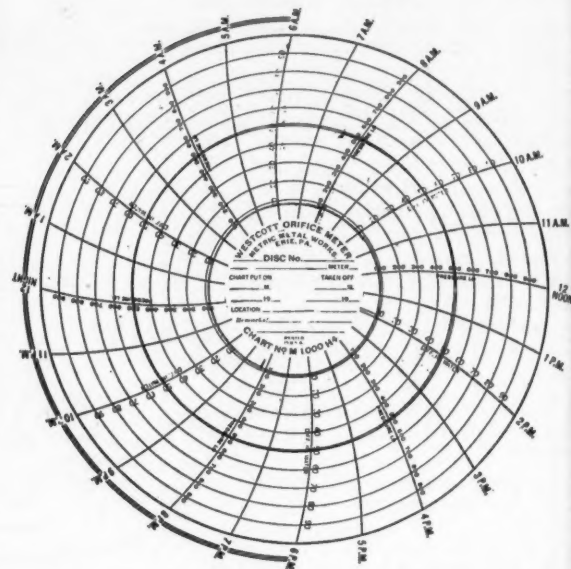


Chart shows accurate metering after installing dampener

Consistency Regulator Controls Thin Stock Low as $\frac{1}{10}$ %

Permits high screening efficiency — results in higher quality paper

USES — This device is designed specifically for the measurement and control of pulp stock consistency as low as $\frac{1}{10}\%$. It has its greatest application in maintaining uniform thin stock in the range of $\frac{1}{10}$ to 1 and $\frac{1}{4}\%$. While developed primarily for the pulp and pa-

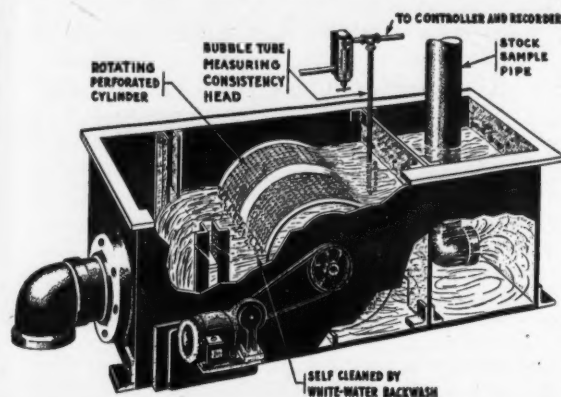
per applications the same principle and operation is applicable to the maintenance of consistency of any fibrous material.

FEATURES — Under uncontrolled conditions consistency will vary as much as 20%. When the consistency

CHEMICAL PREVIEW

is controlled it is held within approximately 2%. In the screening operation maximum capacity and peak efficiency are maintained only when the pulp stock is held accurately at the optimum consistency. If consistency is not controlled screening capacity would have to be reduced in order to prevent overflowing of the screen. Thus in maintaining high efficiency, dirt, knots, splinters and other matter are removed, resulting in a high quality finished paper made from the pulp stock.

DESCRIPTION — The important factor in the development of the overall system is the measurement of consistency. This has been accomplished in the unit by using a mechanism similar to a pulp decker, measuring consistency by determining the web forming characteristics of the stock. In operation, a bypass line carries a continuous sample of the stock flowing to the screens to a "de-



Principle of operation — thin stock consistency regulator

tor cylinder box," flow of this bypass line is held constant by an adjustable orifice in the box inlet. The cylinder in the detector box is perforated and revolved at a constant speed, all of the white water passes through the upstream face of the cylinder but the pulp is continuously forming a web on the cylinder face. This web is just as continuously being washed off by the white water passing through the downstream side of the cylinder. It is obvious (see illustration) that if clear water were passing through the box the head of water in the upstream compartment would be that of the weir on the downstream side. It is equally obvious that if pulp were added to the water, the flow of water would be retarded in proportion to the thickness of the web forming on the cylinder face. As the stock is supplied to the box at a constant flow rate, the variations of head in the box are in direct proportion to the variations in stock consistency. These variations are then measured by an ordinary bubbler tube. The air pressure created by the bubbler tube is used by a standard regulator as the primary control impulse or signal. It may be also recorded and provide day to day records of operation. There are two general types of applications, first where only consistency and the second where consistency and volume of stock must be controlled, in either case the basic operation is the same. More details are available from the manufacturer.

ASKANIA REGULATOR COMPANY, Dept. CP, 1603 S. Michigan Ave., Chicago, Ill.

When inquiring specify CP 84 — see handy form pages 2-3

JANUARY, 1947

Take a Tip From the Products You Use Every Day...

They're made with the aid of BECKMAN pH CONTROL!

WHAT ABOUT YOUR PRODUCT?

FEW PEOPLE—even those in industry themselves—realize the many diversified ways

Beckman pH Control is being used to cut costs, reduce waste, improve operating efficiencies and insure a more uniform quality in dozens of products of daily use. For example...



The gasoline you use was probably refined with the aid of Beckman pH Control. Major refineries use Beckman pH Equipment to control the acidity of their processing operations, thus, not only improving the product, but also minimizing corrosion of costly plant equipment.



The paper you read in your magazines and books, as well as that which you use in your own catalogs and literature, are both made under the close control of Beckman pH Equipment. The paper mills manufacturing the finer qualities of paper use Beckman pH Control to regulate acidity in their processing operations and to insure more uniform printing qualities in the finished paper.



The sugar you eat was undoubtedly refined under the close control of a Beckman pH instrument—for accurate pH control has become an indispensable part of every well-managed sugar refinery.



The suit you wear, as well as your sox, shirt and other textiles you and your family use were probably produced with the aid of Beckman pH Control. It insures color-fastness, more uniform quality, greater strength in the finished fabric.

WHY NOT YOUR PRODUCT? Example after example can be cited where the job is being done better for less by means of Beckman pH Control. Chances are in your plant there are many important savings to be made through the installation of Beckman pH Control. Wherever there's water, there's pH—whether in chemical solutions, fluid pulps, moist pastes, sludges, industrial wastes or vat and tank processes. And wherever water or water solutions are used, chances are product quality can be improved, waste reduced and operating efficiency increased through the use of Beckman pH Control.

Why not find out about your product? Our trained engineering staff will be glad to work with you in recommending what can be done—possibly is already being done—in your particular field of industrial operation. Beckman Instruments, National Technical Laboratories, South Pasadena 11, California.

BECKMAN

INSTRUMENTS CONTROL MODERN INDUSTRIES

FREE... "What Every Executive Should Know About pH"—a helpful, non-technical booklet containing much valuable information on the subject of pH—what it is—how it is used. Send for your copy today.



FACTS YOU SHOULD KNOW ABOUT BECKMAN pH EQUIPMENT

...that Beckman pioneered modern glass electrode pH equipment, transforming the cumbersome laboratory apparatus formerly used into a compact, practical portable instrument that paved the way for today's simplified pH measurement and control.

...that the first completely automatic glass electrode pH indicator, recorder and controller was pioneered by Beckman. Operating entirely without batteries, this instrument made automatic process control accurate, convenient, practical—and is today widely used in all parts of the world.

...that the only High Temperature Glass Electrode system available today is a Beckman achievement. This electrode system for the first time, enables continuous pH measurements to be made at temperatures up to 212°F (100°C) and is of tremendous value wherever hot process fluid must be controlled.

...that the only High pH Glass Electrode system is also a Beckman development. This is the only glass electrode that can be used to measure high pH values even in the presence of sodium ions... and extends the usefulness and accuracy of glass electrode equipment to many industries where alkaline solutions in combination with sodium ions have heretofore presented difficulties.

The above are only a few of many developments that make Beckman pH Equipment the only pH instruments embodying every modern advancement in the field of pH measurement and control.

When inquiring specify CP 85 . . . see information request blank, pgs. 2-3

MACBETH pH METER

★ Line Operated ★ Direct Reading
★ Continuous Indicating



NO BATTERIES USED—The meter can be left on indefinitely for continuous pH indication—No worry about battery failure.

SIMPLIFIED OPERATION—Only one adjustment is necessary to operate the meter. Simple operating procedure is printed on the meter plate.

DIRECT READING—The large, easily read scale is calibrated in intervals of 1/10 pH from 0 to 14.

NEW IMPROVED ELECTRODE ASSEMBLY—Designed to use the new Macbeth five-inch, shielded, high resistance, glass electrodes, or any standard electrodes of the same type. Electrodes may be replaced individually.

ELECTRODE SUPPORT—Horizontal metal bar attached to the meter case, provides adjustment for the electrode assembly at a suitable distance for acid-base titrations. A vertical rod permits adjustment of electrode height.

COMPACT UNIT—Sturdily constructed and housed in an aluminum case—dimensions are: width, 6 3/4 inches; depth, 6 3/4 inches; height, 8 inches. Meter mounting face at 45° angle to facilitate reading.

S-30231 pH METER—MACBETH, line operated, continuous indicating, glass electrode. Complete with new improved electrode assembly with 24" terminal leads; integral electrode support and two standard buffer solutions pH 4 and pH 7. For operation from 115 volt, 50-60 cycle A.C. circuits. **\$150.00**

S-30232—Ditto. But for operation from 230 volt 50-60 cycle A.C. circuits. **\$150.00**

S-30233 pH METER—MACBETH, Only. With integral electrode support but without electrode assembly. For operation from 115 volt 50-60 cycle A.C. circuits **\$130.00**

S-30234—Ditto. But for operation from 230 volt 50-60 cycle A.C. circuits. **\$130.00**

S-30236—ELECTRODE HOLDER, Only, of pH Macbeth meter, without electrodes or extension rods. **\$2.50**

S-30237—ELECTRODE, Only, glass. **\$9.00**

S-30238—ELECTRODE, Only, Calomel. **\$8.50**

S-30240—BUFFER SOLUTION—MACBETH pH 4 pH 7
Per 4 oz. bottle. **\$1.25 \$1.25**

S-30241—CARRYING CASE—LEATHER—For No. 30231 pH meter. This sturdy leather case accommodates the meter with electrodes and support; two buffer solutions and two Pyrex beakers, 50 ml capacity. **\$25.00**

S-30242—TUBES, Replacement bridge 12J7, per matched pair. **\$ 3.50**

E. H. SARGENT & COMPANY, 155-165 E. Superior St., Chicago 1, Ill.
Michigan Division: 1959 East Jefferson, Detroit 7, Michigan

SARGENT
SCIENTIFIC LABORATORY SUPPLIES

When inquiring specify CP 86 — see handy form pages 2-3

Instruments

Thermocouple Measures Molten Metal Temperatures

Temperature reading obtained in 10 to 12 seconds

USES — Temperatures of low melting metals such as aluminum lead, babbitt, zinc, type metal and others are measured with this thermocouple.

FEATURES — Metal temperatures can be measured below the surface of the bath in a matter of seconds while the readings are unaffected by couple wire conditions, and parasitic current generation is wholly absent at the hot junction.

DESCRIPTION — In operation, the couple is immersed several inches below the surface of the bath and held there until a steady reading is obtained on the measuring instrument, usually 10 to 12 seconds. The couple is then withdrawn, adhering metal being removed by shaking the handle. The couple may be supplied as part of a complete system comprising a potentiometer, an external standardizing accessory for specific requirements, and spare tips and extension leads. Complete information is available from the manufacturer.

BROWN INSTRUMENT COMPANY, Dept. CP, Philadelphia, Pa.

When inquiring specify CP 87 — see handy form pages 2-3

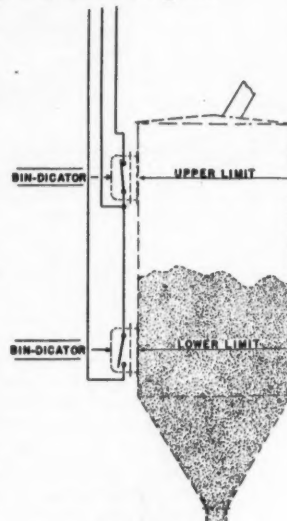
Bin Level Indicator Stops, Starts And Governs Bulk Production

Controls elevators, scales, conveyors; prevents costly overflow, stoppages of bulk or liquids

USES — Bin level indicator for bulk materials, liquids and semi-liquids in bins and hoppers. Also for automatic control of conveying and elevating machinery. Indicates underfeeding, overfeeding or choking, and provides for emergency shut-off of machinery, scales or feeders. Adaptable to all plants, mines and mills where bulk materials are stored, conveyed, blended, processed, weighed, sacked or packaged. Examples: (1) three Bin-Dicator-equipped feederweigher machines proportioning phosphate rock, sand and coke breeze in chemical plant insure against spoiled batches.

Bin-Dicator automatically shuts down entire system when supply of any one material fails, automatically re-starts system when supply is replenished; (2) Mounted on supply bin over pneumatic cement pump, Bin-Dicator signals level of material in supply bin to operator of bulk cement scales on floor above, enables him to feed pump constantly at capacity, avoids backing up of material in system and warns him if pump stops.

FEATURES — Insures against costly overflows and stoppages; assures constant, full production with less labor;



Typical installation of bin level indicators

can be mounted on horizontal, vertical, sloping and curved surfaces. Affords accuracy in sacking weights, since vin levels affect weight accuracy. Offers centralized control, as Bin-Dicators on bins, elevators, conveyors and weighing devices can be connected to signal panels at central control points, increasing safety and efficiency. No springs, no lubrication (manufacturer claims first installation has given service nine years without lubrication, adjustment or repair). Can be mounted inside of bin or out.

DESCRIPTION — Pressure of material forces diaphragm outward against counter-weighted lever system, tipping leverplate and actuating mercury switch. Model "A" for thin walls, model "C" for inside mounting in concrete or multiple-compartment bins. Also available with switch mounted in explosion-proof housing. Literature on request.

THE BIN-DICATOR COMPANY, Dept. CP, 14615 E. Jefferson Ave., Detroit 15, Mich.

When inquiring specify CP 88 — see handy form pages 2-3

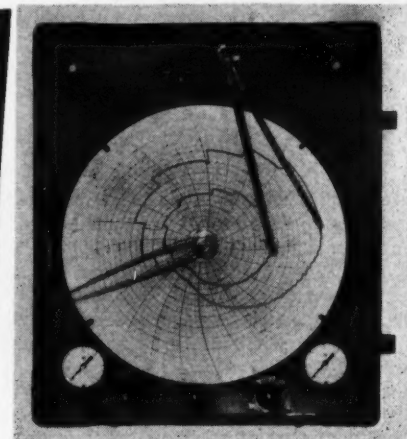
Rotameter Control Maintains Fixed Percentage Ratio

Simple adjustment of ratio knob permits percentage selection from 5:1 to 1:5

USES — These ratio controllers are used to automatically maintain a fixed percentage ratio regardless of the flow variation of the uncontrolled line. Typical uses include dilution of sulphuric acid, caustic soda or concentration of weak nitric with strong sulphuric acid. Others are



Flow ratio controller



Rotameter tube

the introduction of controlled percentage proportions of anti-knock fluids, inhibitors, etc., continuously into pipe lines.

FEATURES — With the fundamental principle employed flow scales are naturally linear, there are no complications involved in characterizing two Rotameters for accurate flow rate proportioning.

DESCRIPTION — Two remote reading rotameters are used in the ratio control system; one meter on each of the lines to be proportioned. These instruments transmit their flow readings electrically to a remote dual receiving instrument. The receiving coils are enclosed in a single instrument case and a record for both instruments is made on a single chart. A ratio mechanism connects the two pen linkage systems and a pneumatic pilot unit having 150% throttling range adjustment and automatic reset is tied into the system. A diaphragm

Instruments

motor valve located in the secondary or controlled percentage flow line operates from the pilot to control the flow in this line in a conventional manner. The ratio percentage selection is made by a simple adjustment of a ratio knob calibrated from 5:1 to 1:5. A copy of bulletin 50-B which describes the rotameter controllers will be sent on request.

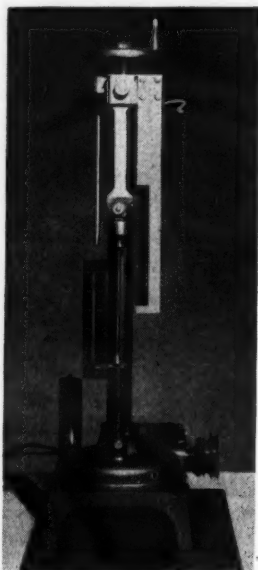
FISCHER & PORTER COMPANY, Dept. CP, Dept. RC-145, Hatboro, Pa.

When inquiring specify CP 89 — see handy form pages 2-3

★

Unit Reveals Tensile Strength, Elongation of Free Films

Results may be correlated with exterior durability, resistance to bending, abrasion, imprinting



Gardner Tensile Strength Apparatus

USES — To determine tensile strength, elongation or distensibility, and elasticity of free films of coating materials. Of value to the paint, varnish, plastic and many other industries.

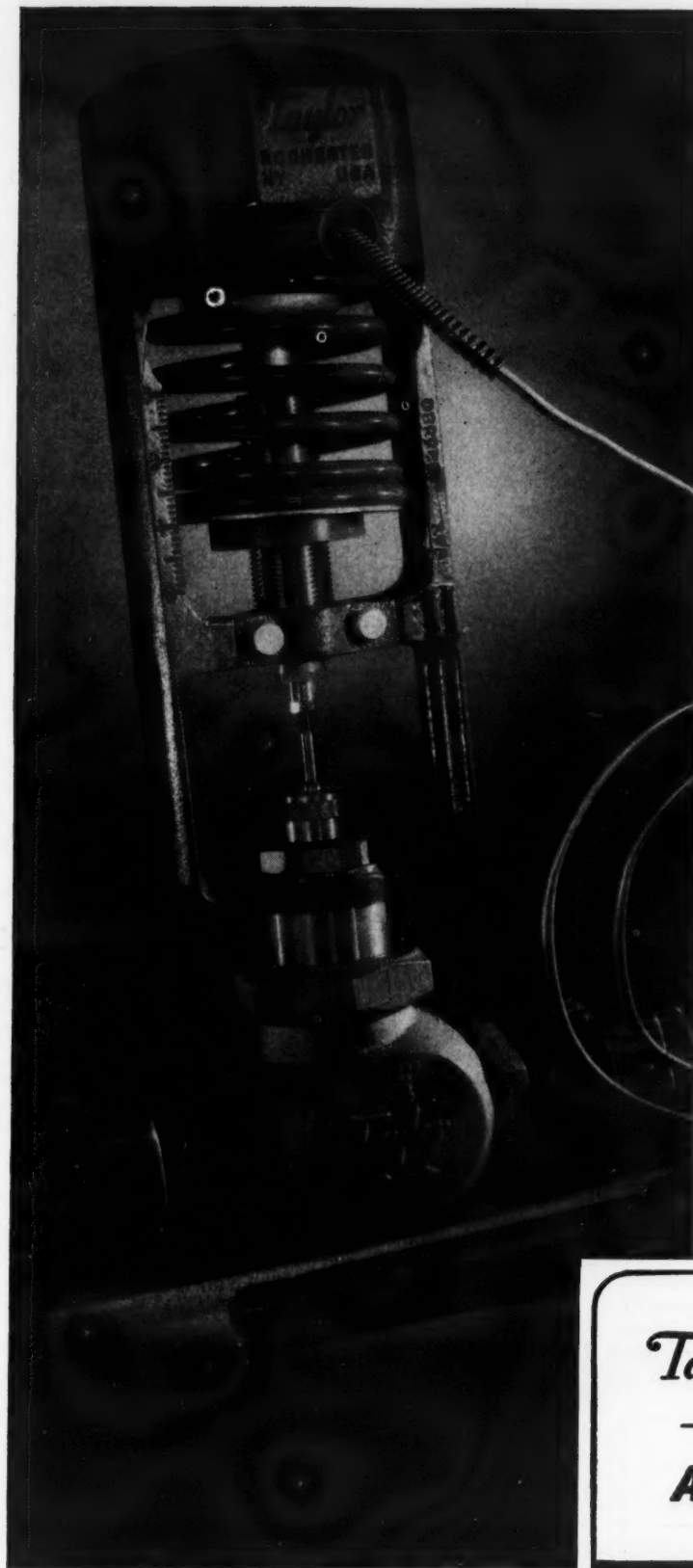
FEATURES — Effects of different kinds and amounts of ingredients such as plasticizers, resins and pigments in cellulose derivative films, also strength, elasticity and elongation of oil, chlorinated rubber and practically all film-forming material, determined quickly and easily. Instrument is compact, simple to operate, with a wide field in the evaluation of raw materials. Results obtained may be correlated with such properties as exterior durability, resistance to bending, abrasion, imprinting, etc. Two calibrated springs are supplied, one for measuring load to 500 grams, the other for measuring load to 2500 grams. Fraction hp motor operates instrument.

DESCRIPTION — Films may be prepared in any suitable manner, as on plate glass, and stripped. They are cut into test pieces 1 cm. wide and about 12 cm. long. Test film is fastened to upper and lower clamps which are adjusted 10 cm. apart. When motor is started, upper clamp is moved upwards 10 or 20 mm. per min., stretching film and spring to which lower clamp is fastened. Elongation or distensibility of film indicated on scale at upper right of apparatus; load indicated on scale at lower left. Elasticity is determined by releasing load at various degrees of distensibility of film, and noting degrees to which film returns to its original length. This apparatus is not new, but has been unavailable for a number of years. For additional data, write the manufacturer.

HENRY A. GARDNER LABORATORY, Inc., Dept. CP, 4723 Elm St., Bethesda 14, Md.

When inquiring specify CP 90 — see handy form pages 2-3

JANUARY, 1947



DON'T SEND A MAN ON A BOY'S ERRAND!

SOMETIMES our customers ask for a Taylor Fulscope Air-Operated Controller for applications where a simple, dependable Taylor Self-Acting Controller would do the job.

Typical jobs which the Taylor Self-Acting Temperature Controllers take in stride are: crude oil treaters, condenser cooler water in stills, oil field superheaters, wax coating machines, plating and rinsing tanks, bottle and can washers, mixing and cooling kettles, hot water tanks, diesel water jackets, feed water systems, etc.

They require no auxiliary air supply for operation. Double seated valves are available in sizes up to 2"; single-seated composition disc types up to 1". Numerous standard temperature ranges within limits of 10° and 340° F., and semi-standard ranges within limits of 165° and 610° F.

Write for catalog 36-R. Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments

— MEAN —

ACCURACY FIRST

IN HOME AND INDUSTRY

When inquiring specify CP 91 . . . see information request blank, pgs. 2-3

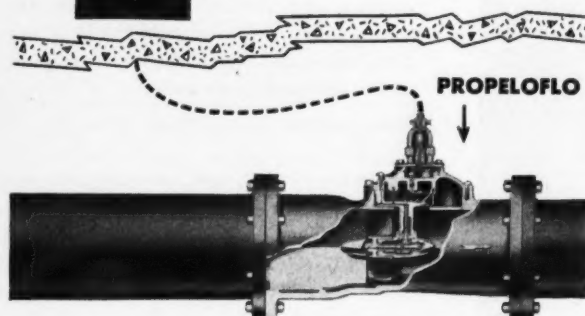
Propeloflo

METER



← TOTALIZER
← INDICATOR
← RECORDER

for Metering
Water or
other Liquids



The Builders Propeloflo Meter, primarily used for totalizing flow, can also be provided with a secondary instrument as shown for totalizing, indicating and recording where this additional information is desired. The instrument is operated mechanically by flexible cable for distances up to 15 feet, or electrically for greater distances: Readings are conveniently available, regardless of the location of the Propeloflo. Low cost, accurate performance (within $\pm 2\%$) and ample reserve power to drive auxiliary equipment recommend the Propeloflo for many applications in lines 2" or larger. For Bulletin 350A, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Coddling Street, Providence 1, R. I.

Builders Products

Venturi, Propeloflo and Orifice Meters • Type M, Flo-Watch and Flo-Gage Instruments • Shuntflo Steam Meters
Kennison Nozzles • Chronoflo Telemeters • Conveyor Scales

BUILDERS *instruments* **PROVIDENCE**

When inquiring specify CP 92 — see handy form pages 2-3

Instruments

Protectrol Stops Pump Operation When Water Discharge Fails

Operates independent of primary control. Prevents pump restarting until manually reset

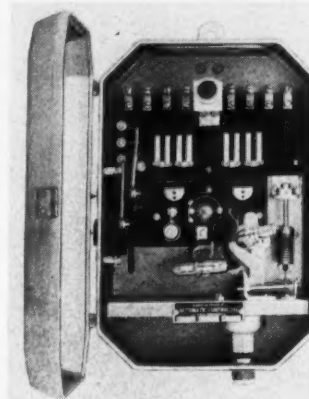


Illustration shows various elements and terminals of Protectrol Class 1.

USES — This device is designed to prevent deep well or centrifugal pumps from running more than a predetermined interval without discharging water. It is not a primary control device which may be used for automatically starting the pump. Rather it is used in conjunction with a primary control either automatic or manual.

FEATURES — As a protective device the unit is inoperative unless the primary control has called for pump operation by pulling in the starter. Once the protectrol stops the pump it locks it out until manually reset regardless of primary control operation.

DESCRIPTION — Available in two classes — class 1 and class 2. Class 1 operates as follows —

1. Stops the pump if water is not discharged within a definite interval after the starter is energized.
2. Locks starter out irrespective of primary control until protectrol is manually reset.
3. Energizes audible alarm circuit the moment the pump is stopped.
4. Simultaneously lights built-in warning light which continues to burn until device is reset.
5. Automatic reset type alarm permits silencing while trouble is corrected.
6. Pushing reset button restores all circuits to operate again as occasion arises.

Class 2 operates as follows —

1. Stops the pump if water is not discharged within a definite interval after the starter is energized.
2. Locks starter out irrespective of primary control until manually reset.

Complete information is available from the manufacturer.

AUTOMATIC CONTROL COMPANY, Dept. CP, 1005 University Ave., St. Paul 4, Minn.

When inquiring specify CP 93 — see handy form pages 2-3

Assure 20 to 35% Production Boost with Electronic Pulverizer Feed Controls

Amplified Signal, new electronic control device which is claimed to eliminate all critical relay adjustment in the regulation and coordination of pulverizer feeds to maximum grinder motor load, is fully explained in a four-page, illustrated manufacturer's folder. Incorporated in manufacturer's Model ES-3 electronic feed regulator, the com-

CHEMICAL PROCESS TIMING Faster, Better, Cheaper



THE NEW

Simplex

PRODUCTOGRAPH

Records on tape the STARTS and STOPS of each machine. Designed to indicate the duration of speed, weight, pressure, or flow as expressed in time units.

Present conditions make Simplex Productographs an incentive to both increased production and lower costs.

MAY WE SEND YOU OUR BULLETIN

"FACTS BEHIND PRODUCTION"?

SIMPLEX TIME RECORDER CO., GARDNER, MASS., U.S.A.

When inquiring specify CP 94 — see handy form pages 2-3

NEW all metal WESTON



RED INDEX shows the highest or lowest temperature reached!

Simply swing the red index to the low side of the temperature pointer, and the index will move to the lowest temperature reached, and remain there until manually reset. For highest temperature record, simply swing the red index around to the high side of the pointer.

The index movement in no way impairs the guaranteed high accuracy of the WESTON Thermometer.

Thus the WESTON Maximum-Minimum Thermometer provides, at only slightly above ordinary thermometer prices, a means of obtaining high or low temperature records on equipment or processes where these extreme temperatures are critical. Ideal for transformers, sterilizers, ovens, chemical equipment, food processing, etc. For complete information, consult your nearest WESTON representative. WESTON ELECTRICAL INSTRUMENT CORPORATION, 618 Frelinghuysen Avenue, Newark 5, New Jersey.

When inquiring specify CP 95 — see handy form pages 2-3

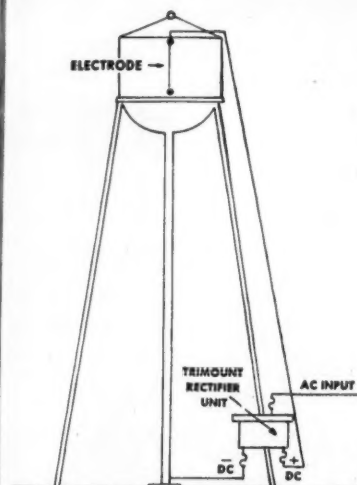
plete unit is said to unlock 20% to 35% more pulverizing production from present reducing equipment. The new principle does away with mechanical adjustment of critical relays. Electrically regulated vacuum tubes replace such mechanical adjustment and eliminate moving parts. While sensitive to all changes in rate of feed to grinder, Amplified Signal controls are not affected by fluctuations in power line voltage. Gasketed control box checks entrance of dust and other foreign matter, protecting the instrument's accurate operation. For use with pulverizers, cutters, hammer mills, similar equipment. Claim less wear and tear on instrument, more uniform pulverizer output, less manual supervision, lower operating costs. List of 25 users is included. Information also given concerning electronic level indicator which "tells at a glance" when bins or tanks are full or empty. Write for bulletin entitled, "Postwar Key To Greater Pulverizing Output."

MOSHER ELECTRONIC CONTROLS, Dept. CP, 130 W. 42nd St., New York 18, N. Y.

When inquiring specify CP 96 — see handy form pages 2-3

Rectifier "Rust Proofs" Water Tanks, Deep Well Pumps

Unit has sufficient output to protect 10,000 sq. ft. submerged area



ELEVATED WATER TANK

Installation of Cathodic Rectifier Unit

USES — Cathodic rectifier unit for protecting water tanks and deep well pumps from rust and corrosion.

FEATURES — Unit is contained in a weatherproof steel cabinet, with DC output capacity of 2—5 amps. at 31—50 volts (100 to 150 DC watts), or sufficient to protect submerged areas up to 10,000 sq. ft. Preferred AC input 110—3—60, but unit can be equipped to take other AC character-

istics. Step controls up to 50 DA with moving coil type ammeter and voltmeter are standard.

DESCRIPTION — Unit stops rust and corrosion by eliminating electrolytic action on metal being protected. Ordinarily a steel tank or pump acts as a galvanic battery, submerged part forming the anode which is subject to rapid rusting, pitting or corrosion. With Cathodic Rectifier Unit, this flow of current is reversed by introducing a cathode which is charged by rectifier. Metal of the tank or pump thereby becomes the cathode and is not subject to rust or corrosion. For additional information, write.

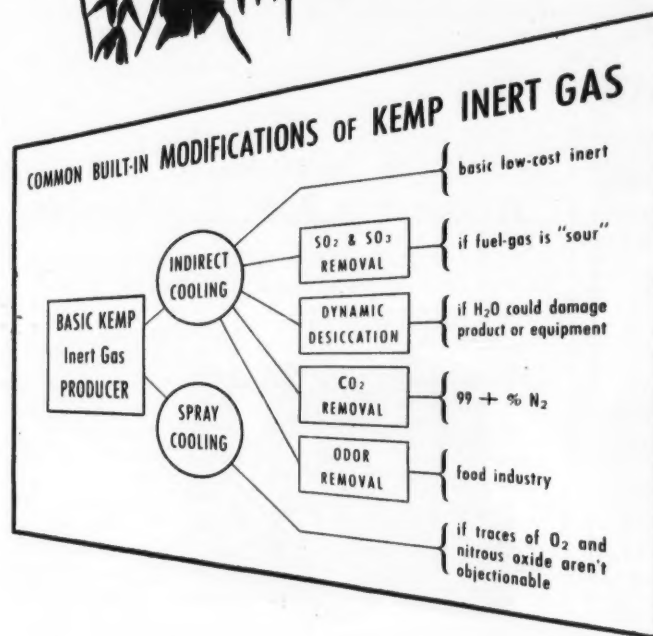
TRIMOUNT INSTRUMENT COMPANY, Dept. CP, 37 W. Van Buren St., Chicago 5, Ill.

When inquiring specify CP 97 — see handy form pages 2-3

JANUARY, 1947



WHEN THEN



KEMP OF BALTIMORE

PRECISION CARBURETION +

ADAPTED COMBUSTION FOR INDUSTRY'S HEAT USING PROCESSES

ATMOSPHERE GENERATION & ADSORPTIVE DRYER SYSTEMS FOR PROCESS CONTROL AND PROTECTION

When inquiring specify CP 98 . . . see information request blank, pgs. 2-3

THE PRODUCT HAS AN AFFINITY
FOR WATER VAPOR

SULPHUROUS PURGING GASES
ENCOURAGE CORROSION

CARBONIC ACID MIGHT
VITIATE THE PRODUCT

KEMP inert gases can
be modified to match

The so-called "inert gases" aren't always inert. The raw products of combustion which comprise the basis of most "inerts," contain water vapor and carbon dioxide—and, often, sulphur dioxide, odorous aldehydes and nitrous oxides—all in addition to the nitrogen you're after. And each of these can be most active in contact with certain materials at certain temperatures and pressures.

That's why the modifications of basic "inerts" (to remove selected components) are important.

KEMP is an old hand at gas modifications. It was one of the very first to make dynamic desiccation (continuous adsorption in gel beds) available to the chemical industries. Its equipment has been favored in sour-gas territories for years, because of its attention to SO₂ and SO₃ troubles. And lately it has set up to build amine scrubbers (for CO₂ absorption)—as well as odor-removal towers . . . into its units.

KEMP modifies the gas to match your job. Use the coupon for more particulars.

The C. M. Kemp Mfg. Co., Inc. JML Co.—K-AI cp
405 E. Oliver St., Baltimore 2, Md.
Send me your literature on the KEMP inert-gas family.

NAME

POSITION

COMPANY

PLACE

I use inert gas for purging ☐ blanketing ☐
preventing oxidation ☐ agitation ☐ fire protection ☐ displacement ☐



**We're Shouting
About Another
Palmer First!**

**A
SENSATIONAL NEW
THERMOMETER WITH
Extruded Brass Case
PATENTED**

DUST-PROOF • FUME-RESISTANT

Palmer — originators of famous "Red-Reading-Mercury" — is first again with a sensational new Thermometer featuring an Extruded Brass Case. The case is fume-resistant, dust-proof, has pleasing contours and a durable nickel finish. This new Thermometer has a V-shape design and the "Red-Reading-Mercury" feature with a much larger scale... for easy, more accurate reading.

Equally important features are, double strength, non-rattling glass shield; "snap-on" cap for easy removal of shield. Send for detailed Bulletins No. 46-2 and No. 46-3.

In 4, 6, 7, 9 and 12 in. models.
Mfrs. Industrial, Laboratory, Recording and Dial Thermometers



PALMER THERMOMETERS, INC.

2519 Norwood Ave., Cincinnati 12, Ohio
Canadian Plant: King and George Sts., Toronto 2

When inquiring specify CP 99 — see handy form pages 2-3

PALO-TRAVIS PARTICLE SIZE APPARATUS

OFFERS

Accuracy

Ease of Manipulation

Versatility

Rapidity

The sedimentation principle on which this instrument operates makes it possible to determine the subsieve range, from 325 mesh down to 2 microns. Elaborate calculations are eliminated by the use of a graphical solution or a slide rule calculator, both of which are furnished with the instrument.

Determination may be made on any substance, providing there is a liquid medium available, in which the substance is insoluble, and a dispersing agent that will disperse the particles.

Write for particulars of Model 7027P

PAJO-MYERS INC.

81 READE STREET, NEW YORK 7, N. Y.

When inquiring specify CP 100 — see handy form pages 2-3

Instruments

Three-way Flow Diversion Valves are Diaphragm Controlled

Offer 1/2" to 6" sizes in cast iron, steel, bronze,
stainless or cast stainless

USES — Three-way type diaphragm operated control valves for flow diversion service. Suitable for operation with standard 2-15 lb. air output controllers or for controllers requiring special spring rangers.

FEATURES — Position of diaphragm-operated valve plug determines diversion of flow between the two outlet ports from 0-100% flow. For high temperature service, airfin bonnets are available. Available in sizes 1/2 to 6" inclusive, in cast iron, steel, bronze, or stainless. Stainless steels are obtainable in cast form.

DESCRIPTION — Through-bolted bonnet and blind-headed flanges, all-steel diaphragm superstructure, valve position indicator, two-ply Neoprene diaphragm, grease lubricator for stuffing box, bolted stuffing box gland. Face-to-face dimensions are in accord with ASA standards as covered by B16.10-1939 "Face-to-Face Dimensions of Ferrous Flanged and Welding End Valves."

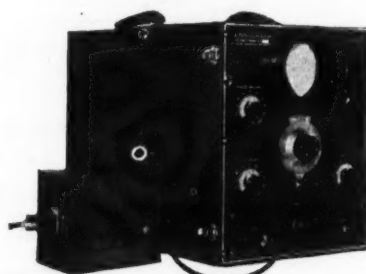
HAMMEL-DAHL CO., Dept. CP, 243 Richmond St., Providence 3, R. I.

When inquiring specify CP 101 — see handy form pages 2-3

★

Ferrograph Sorts Mixed Bolts For Hardness at Rate of 1 Per Sec.

Use of cathode-ray indicator insures high
sensitivity and portability



Ferrograph, in its refined form

USES — Convenient, simple method for comparing ferrous materials, both for chemical analysis and heat treatment. For determining composition and condition of ferromagnetic materials by magnetic testing, with cathode-ray tube as instantaneous indicator. Examples: (1) steel bars were sorted to reject those softer than Rockwell C 32. First and third harmonic amplitude readings failed to provide practical separation, but observation of relative phases offered sufficiently sensitive test for correlation with hardness, so that separation could be made; (2) steel bolts 1/2" in diameter and 3" long accidentally were made of two different steels. Error undiscovered until bolts had been heat treated. Bolts of SAE 1035 were satisfactory, but lower carbon bolts of SAE 1020 were too soft. Hardness of two lots differed by 15 point Rockwell C. Samples of each bolt were identified in hardness machine, and respective patterns established on cathode-ray tube screen. Results showed no overlapping of indications for bolts made from the two steels at flux density chosen. Sorting proceeded on mixed bolts at rate of about one per second.

HOW TO SOLVE YOUR MOISTURE TESTING PROBLEMS



Your moisture testing problems can no doubt be solved like those of Joliet Chemicals, Ltd. . . . user of the Steinlite Moisture Tester 168 hours a week for 3 months and 8 hours a day for over 9 additional months . . . on Silica Gel, Zeolite and other chemicals.

"The Steinlite is so accurate and consistent . . . saves much time . . . moisture tests can be made in 1 or 2 minutes as compared to 2 or 3 hours using standard oven or furnace methods . . . a big asset in production control . . . results available immediately . . . operated by inexperienced personnel . . . paid for itself many times in one year," says Joliet Chemicals, Ltd. Seedburo is headquarters for moisture testing "know how." Submit your problem today. No obligation.

667 BROOKS BUILDING

CHICAGO 6, ILLINOIS

SEEDBURO

EQUIPMENT COMPANY

When inquiring specify CP 102 — see handy form pages 2-3

SURFACE PYROMETERS FOR EVERY PURPOSE

The correct temperature of roll surfaces, masses of plastic materials and of mold cavities is vitally important in many processing industries. The routine use of a dependable surface pyrometer takes the guess-work out of such temperature determination. The Cambridge Surface Pyrometer is the ideal instrument for all these applications — in plant and laboratory. It is accurate, rugged, quick acting and easy to use. The Roll Model is for checking surface temperature of still or moving rolls. The Needle Model is for within-the-mass temperature and the Mold Model is for checking mold cavities.

Send for bulletin 194CP

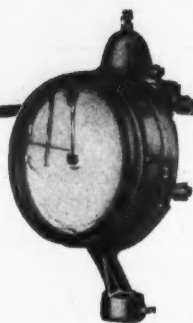
CAMBRIDGE

ROLL • NEEDLE • MOLD
PYROMETERS

CAMBRIDGE INSTRUMENT CO., INC.

3706 Grand Central Terminal
New York 17, New York

When inquiring specify CP 103 — see handy form pages 2-3



AUTOMATIC HYDROMETER

Continuously Records Densities!

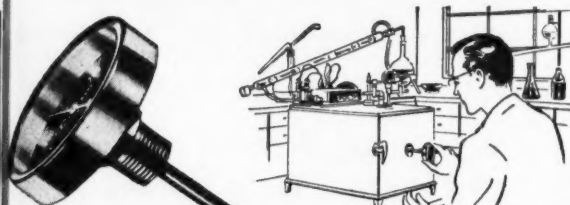
Here's an invaluable aid to operating efficiency in paper, food and chemical plants! The Foxboro Liquid Density Recorder furnishes continuous, accurate records of density in flowing liquids. May be calibrated in specific gravity or any customary scale. Automatic Recording Controllers also are available.

Both instruments are for permanent installation. Function without operator's attention. Accuracy is unaffected by foam. Open records easily read to small unit values.

Write for detailed Bulletin A-264. The Foxboro Company, 190 Neponset Avenue, Foxboro, Mass., U. S. A. Branches in principal cities of U. S. and Canada.

FOXBORO DENSITY RECORDERS

When inquiring specify CP 104 — see handy form pages 2-3



FOR ACCURACY

PRECISION DILLON THERMOMETERS OFFER THE FINEST IN SCIENTIFIC HEAT CONTROL

These carefully engineered instruments can be screwed into tanks, boilers, stacks, pipes, etc. Come in stem lengths of 5' or 9' with special lengths to order. Dials are 3' or 5' with large, easy to read figures. Made of 18-8, acid resistant stainless steel. FOUR ranges: 0-200 F., 50-300 F., 150-750 F., 200-1000 F. Also available in Centigrade equivalent. Dillon Engineers are glad to adapt this unit to your manufactured products. Write today for folder and low price schedule.



the DILLON dial
STAINLESS STEEL
thermometer
W.C. DILLON & CO. 5417 W. HARRISON ST.
CHICAGO 44, ILLINOIS

When inquiring specify CP 105 — see handy form pages 2-3

Instruments

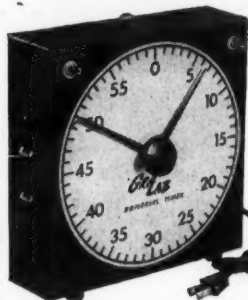
FEATURES — Use of cathode-ray indicator means high sensitivity and portability. Complete wave forms can be seen, therefore need not be estimated. Phase angles can be measured, compared by relatively unskilled personnel. In many instances, as in case of steel bars mentioned above, one of the two types of display gives better, more easily read indication of metallurgical differences. For particular sorting problems, there is also an optimum test magnetomotive flux density. Tests at various values of energizing current will establish most satisfactory flux density in each instance.

DESCRIPTION — Basic principle of Ferrograph is the harmonic analysis of induced voltage in the secondary of a test transformer in which sample to be tested is made the core. By indicating amplitudes and phase angles of the fundamental and third harmonic components, the unit serves for most practical industrial problems. It uses an energizing field of frequency below 25 cps, with reversals of magnetic field slow enough so that appreciable effect is obtained from the remanent magnetism. Instrument is based on correlation between magnetic properties, particularly remanent magnetism which predominates at the low frequency used, and metallurgical properties. Housed in steel case 14" high, 18" wide, 24" deep. Two carrying handles. Completely self-contained, with its own power pack, operating on 110-volt AC. Weight: 115 lbs.

ALLEN B. DU MONT LABORATORIES, INC., Dept. CP, Passaic, N. J.

When inquiring specify CP 106 — see handy form pages 2-3

An Amazing New UNIVERSAL Electric TIMER



for Accurate, Automatic Visual or Audible Timing in Minutes and Seconds

A really up-to-the-minute laboratory timer that has everything. Ideal wherever precise timing operations are needed. Not just an "alarm clock," it is a precision instrument that can be set in minutes and seconds up to one full hour. Large aluminum dial easily seen in ordinary or subdued light. 8 1/2" square by 2 5/8" deep. Operated by synchronous clock motor and can convey a load up to 750 watts. For larger loads a suitable relay may be connected externally. Can be used as interval timer.

No. P-38972 for 110 V. 60 cy. \$22.95

Write for Circular

LAPINE & COMPANY
ARTHUR S. **LAPINE** & COMPANY
LABORATORY APPARATUS & REAGENTS • INDUSTRIAL CHEMICALS
129 W. Hubbard St. Chicago 10, Ill.

When inquiring specify CP 107 — see handy form pages 2-3

When you want accurate and dependable automatic temperature or humidity control for Industrial Processes or Air Conditioning Systems call in a Powers engineer. With a very complete line of self-operating and compressed air operated controls we are well equipped to fill your requirements.

Write for Circular 2520

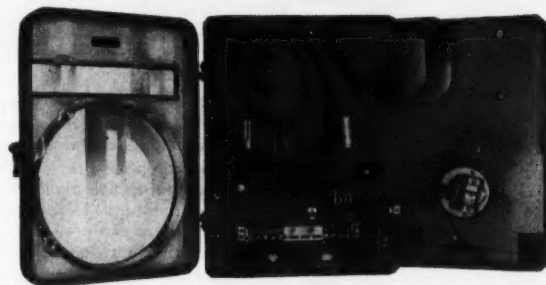
THE POWERS REGULATOR CO.
2756 Greenview Avenue, CHICAGO

Offices in 47 Cities—See your phone directory

50 Years of Temperature and Humidity Control ★

When inquiring specify CP 108 — see handy form pages 2-3

Now... More Accurate ELECTRONICALLY!



NEW BRISTOL DYNAMASTER Electronic Resistance Thermometer

Operates on the null balance principle... uses standard vacuum tubes... needs no levelling... gives super-sensitivity... extreme accuracy -150°F. to +400°F.... high speed. Write for Bulletin R900 for complete story.

THE BRISTOL COMPANY, 141 Bristol Road, Waterbury, Conn.



Engineers process control for better products and profits

AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS

When inquiring specify CP 109 — see handy form pages 2-3

"PRECISION" Water Baths

For general utility laboratory use

In addition to a wide range of standard sizes and models of "Precision" constant temperature baths for reduced or elevated temperatures, we specialize in the building of constant temperature equipment for specific purposes. By investigating what Precision has to offer you are certain to get the benefit of more than 20 years of experience.

Shown below are 3 sizes of rectangular water baths and three types of circular water baths for general utility laboratory use.



TWELVE HOLE RECTANGULAR WATER BATH. Dimensions 27 1/4 x 20 1/2 x 4 deep. Overall dimension of top 29 x 22. Overhanging flange around rim permits flush mounting in table top. Has combination constant level device with overflow and drain.

EIGHT-HOLE RECTANGULAR WATER BATH. Dimensions 28" x 14" x 4" deep. Has overhanging flange for flush mounting in table top. Four hole water bath, same as above shown above at right.

SHALLOW FORM BATH WITH VALVE. Tinned copper, with concentric ring cover with 1/2 I.P.S. glove valve for controlling steam.

CIRCULAR WATER BATH. Gas Heat. Convenient for restricted space. Equipped with adjustable water level, gauge glass and rubber connections. Brass draw-off cock. Heavy copper, tinned inside. Sprayed aluminum finish.

ARMY MEDICAL SCHOOL MODEL. Cover has 18 1/2" diameter openings and tubulature in the center. Perforations in the false bottom correspond with openings in the cover for supporting test tubes, yet allows free circulation of water. Heavy copper, tinned inside, outside aluminum sprayed.

See Your Laboratory Supply Dealer

Write for literature.



PRECISION SCIENTIFIC COMPANY

1736-54 N. Springfield Ave., Chicago 47, U.S.A.

Engineers and Builders of Scientific Apparatus and Production Control Laboratory Equipment for Almost a Quarter Century

When inquiring specify CP 110 . . . see information request blank, pgs. 2-3

A pressure gauge or Dial Thermometer for every need in process plants



THE MARSH MASTERGAUGE represents Marsh accuracy and stamina in its most highly developed form. There is a type of gauge and pressure range for every condition.



Marsh diaphragm gauge, typical of the many special types.

The particularly wide range of services encountered in process industries is fully met by the broad line of Marsh pressure gauges and dial thermometers.

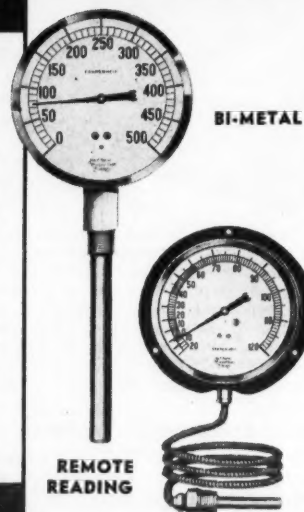
Every range of pressure is covered by Marsh Gauges. Bourdon tubes are available in materials suited to any pressure medium. Diaphragm type gauges are available for use where the pressure medium cannot be permitted to enter the bourdon tube. Special types of gauges and movements meet unusual conditions such as extreme pressure, pulsating pressure, and excessive vibration.

Marsh Thermometers are also made in types and temperature ranges for practically every service requirement. Behind Marsh Gauges and Thermometers is a complete engineering service that assures proper application of Marsh instruments. Ask for information covering your particular problems of pressure or temperature.

JAS. P. MARSH CORP., 2095 Southport, Chicago 14, Ill.
Export Dept.: 155 E. 44th St., New York 17

MARSH

PRESSURE GAUGES
DIAL THERMOMETERS



REMOTE READING

Marsh Remote Reading and Bi-metal dial thermometers cover practically all installation conditions and temperature ranges.

Instruments

Pirani Tubes Provide a Rapid Reading of Low Gas Pressures

Special filaments permit direct, plus-minus 5% readings within 1 to 1000 micron range

USES — Pirani tubes for pressure gauges and leak detectors in evacuating apparatus and automatic pressure recording equipment. Provide a convenient means of direct, rapid, continuous readings of low gas pressures.

FEATURES — Designed with special tungsten filaments having high temperature coefficient of resistance permitting direct readings of gas pressures. Change in gas pressure produces change in thermal conductivity, filament temperature and filament resistance. Measurement of filament resistance, calibrated in terms of pressures for individual gases, indicated on an 0-1 millimeter placed in simple bridge circuit. Manufacturer recommends matched pairs of tubes for greater accuracy. One tube is sealed directly into evacuating system, second or compensating tube is left intact, opened to surrounding air or filled with specific gas to standard pressure. Tubes are usually mounted in close proximity to provide same ambient, and installation usually is shielded carefully from radiant heat of air currents.

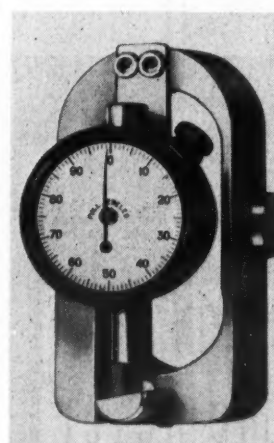
DESCRIPTION — Readings obtained with plus or minus 5% accuracy within pressure range of 1 to 1000 microns. Tubes are supplied in nonex glass envelopes with tubulation for direct sealing into apparatus. Overall length of tube approximately 8". Designed to operate at 1.5 volts, 100 milliamperes. Cold resistance of filament, 6.6 ohms. Hot resistance at 100 milliamperes in evacuated tube ranges from 15.5 to 17.0 ohms. Address manufacturer for further data.

SYLVANIA ELECTRIC PRODUCTS, Inc., ELECTRONICS DIVISION, Dept. CP, 500 Fifth Ave., New York 18, N. Y.

When inquiring specify CP 112 — see handy form pages 2-3

Mechanical Pressure Gauge Fits into "Tight" Spots

Available in ranges of 0-100, 0-250, 0-500, 0-1000, 0-2500 and 0-5000 pounds



Mechanical pressure gauge

USES — Device is used in accurate testing work such as checking pressure between spot welding machine electrodes, pressure between platens in all types of presses, pressure between moving rollers, tension in a moving thread, twine, wire, etc.

FEATURES — Gauge has been designed small to fit into "tight" spots heretofore inaccessible, yet where pressures of static or moving parts must be measured. Unit is almost entirely unaffected even by extreme temperature changes and can be used indoors or out.

DESCRIPTION — Gauges are compact; the 0-100 pound model measures 3 3/8" long x 2-7/32" high x 1-3/42" wide. Weight 1 1/4 lbs. net. The 0-250, 0-500, 0-1000

When inquiring specify CP 111 . . . see information request blank, pgs. 2-3

Instruments

pound models all measure $4\frac{5}{16}$ " long x $2\frac{7}{16}$ " high x $2\frac{5}{16}$ " wide. Weight 2 lbs. net. The 0-2500 and 0-5000 pound models measure $4\frac{3}{8}$ " long x $2\frac{3}{8}$ " high x $2\frac{3}{4}$ " wide. Weight $2\frac{1}{2}$ lbs. Unit works in vises, between all types of clamps, and can be converted into a miniature testing machine. In cases where the operator cannot get close enough to read the dial, a remote repeater station can be supplied up to 500 feet. More details are available on request.

W. C. DILLON & COMPANY, INC., Dept. CP, 5410 W. Harrison St., Chicago 44, Ill.

When inquiring specify CP 113 — see handy form pages 2-3

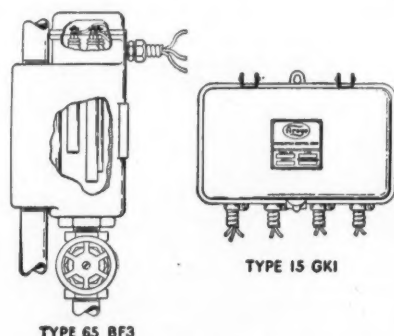
Feedwater Control Maintains Desired Boiler Water Level

Handles A. C. motors directly up to 1/12 h.p. at 115 volts and 1/6 h.p. at 230 volts

USES — This device is an automatic control for maintaining boiler water level and instantly turning off fuel supply and sounding an alarm at a dangerously low-water level.

FEATURES — Equipment is maintenance-free — contains no moving parts, no floats or bellows seals, no vacuum tubes requiring replacement.

DESCRIPTION — Control operates on alternating current and combines a probe circuit and transformer to operate direct current relay through a rectifier. Direct current is



TYPE 65 BF3

Boiler feedwater control and probe.

TYPE 15 GKI

used in the relay circuit to eliminate chatter, increase contact pressure, and make possible the use of low alternating current voltages in the probe circuit. Closure of the probe circuit alters the magnetic field of the transformer in such a way that current is generated in the rectifier-relay circuit, energizing the relay. Equipment consists of a control and probe fitting. Probe fitting is mounted parallel to the water column and wired to the control. Three probes are used within the fitting. Top and middle probes determine the high and low level at which the boiler feedwater pump is turned off and on to maintain constant water level. The lowest probe defines the danger point below which water must not fall. Should water drop below this safety probe, fuel supply is shut off and an alarm is sounded. Controls are supplied for any make, type, and size of steam boiler, with any method of firing and for any pressure up to 300 pounds per sq. inch. Complete information is contained in bulletin 104-C and is available from the manufacturer.

COMBUSTION CONTROL CORPORATION, Dept. CP, 77 Broadway, Cambridge 42, Mass.

When inquiring specify CP 114 — see handy form pages 2-3

JANUARY, 1947

MACBETH



The First

Direct Reading

Line Operated

Continuous Indicating

pH Meter

The MACBETH pH METER protects production— continuously

The Macbeth line-operated pH Meter can be left on continuously or indefinitely, as may be desired. This is a factor of great importance in maintaining a constant pH check on production. The large, easily read scale, graduated in .1 pH units, continuously from 0 to 14 pH, gives information quickly and clearly. Untrained users can easily make ordinary pH measurements. The Macbeth is the most simple pH Meter to operate.

MACBETH pH METER FEATURES
ONLY ONE OPERATING CONTROL

Write for Bulletin.



MACBETH CORPORATION

227 WEST 17th ST.

NEW YORK 11, N.Y.

Manufacturers of Scientific Apparatus Since 1915

When inquiring specify CP 115 . . . see information request blank, pgs. 2-3

HERE'S HOW TO TRADE Pennies for Dollars



• Water, in the form of steam, should not cost more than a dollar a ton. But the same water as moisture content of sole leather would sell for well over \$100.00 per ton. Can you afford to let dry air take valuable moisture out of hygroscopic materials? No, not when Armstrong Humidifiers will maintain 50% relative humidity at a cost of less than one cent per day for each one thousand cubic feet of space humidified. For complete details get a copy of Bulletin 158-B. Write Armstrong Machine Works, 880 Maple Street, Three Rivers, Michigan.

as easy and
simple to
install as a
unit heater

• Armstrong Unit Humidifiers are easily connected to the same steam lines that supply heat to buildings. An automatic humidistat controls relative humidity within close limits. One small unit takes care of as much as 40,000 cu. ft. of space at an operating cost of less than one cent per day per 1,000 cu. ft. of space humidified.



ARMSTRONG
Industrial Type
HUMIDIFIERS

When inquiring specify CP 116 — see handy form pages 2-3

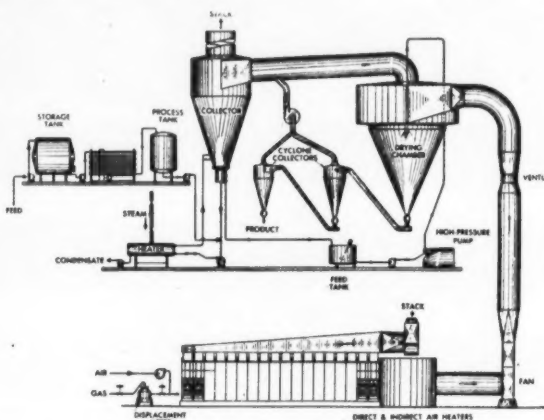
★ IDEAS ★

Industrial ingenuity constantly hatches new ideas, many of which can be applied to similar problems in other plants. The Editors have selected these ideas and developments because of their interest and possible application in specific plant problems. If you would like more information on any of these, write direct to the manufacturers.

Spray Dryer Equipment Available For Fundamental Research

*Operation of commercial-size dryer provides
production data under plant-scale conditions*

Spray drying originated and was developed in the dairy industry for the production of dried skim milk. Later and more recently, other dairy products such as whole milk and ice cream mix were dried. In recent years the dryer has been modified and adapted for widespread use in the chemical industry. Applications have included by-product recovery and the drying of both



Flow sheet of experimental spray drying plant.

organic and inorganic materials. In fact, almost any pumpable material may be dried for commercial purposes. The spray dryer research equipment described is ready for experimentation with any pumpable and dryable substance. It is not a pilot plant. It is a standard 14-foot diameter unit with an 11-foot diameter combination liquid and dry collector which is readily adapted to different products through the use of special auxiliary equipment. Operation of this commercial-size dryer will give production data under plant-scale conditions. This data, plus the manufacturer's experience in process engineering, will assist prospective users in the evaluation of the use of spray drying, as well as provide the factors for the design of equipment. As indicated in the accompanying diagram the gas fired heaters are arranged to furnish either filtered hot air or a mixture of air and the products of combustion, as a source of heat. The feed may either be concentrated in the wet collector or fed directly to the dryer. It is atomized in a special nozzle which discharges into the drying chamber counter-currently to the incoming air. The dried product is continuously discharged from the bottom of the drying chamber and is removed from the system. Exhaust air goes out the top of the drying chamber, passes through the collector, and discharges to the atmosphere. Complete instrumentation is provided in order to record and control all the variables of the

process. All equipment in contact with product is of stainless steel construction. This plant is available for use to industries with bonafide inquiries which will be handled on a prearranged cost basis. (Digested from Bulletin D-101 as issued by Swenson Evaporator Company, Spray Dryer Department, Harvey, Ill.)

Accelerators Coagulate Liquid Latex in Three Minutes

*Make possible new moving belt method of processing
now operating on laboratory scale in
Malaya*

A moving belt process by which crude latex and coagulants can be fed to a continuous sheeting battery has been developed on a laboratory scale by B. F. Goodrich Co., at Kuala Lumpur in lower Malaya. The new method will speed up processing, save factory space and improve uniformity of the end product. The process is made



★ Here is an exciting new kind of label. It adheres firmly to any smooth surface—metal, plastic, glass, wood, painted or varnished. Won't dry out and fall off—yet like magic are easily peeled off in one piece without leaving a trace! ★ At last you can place instructions, warnings, tradenames, describe finishes, point out features, directly on the product at the very place such data should be carried. ★ When these Kum-Kleen stickers have served their purpose, they may be peeled off without scraping or tearing—a feature your customers will appreciate. ★ They are quickly applied without moistening—are available in any size, shape or color, printed to your specifications. ★

Send for sample and complete information. Address Dept. CP-1.

AVERY ADHESIVE LABEL CORP., 36 W. Union St., Pasadena 1, Calif.; 41 Park Row, New York 7; 608 S. Dearborn St., Chicago 5, and principal cities. In Canada: Enterprise Sales, Toronto.

AVERY **Kum-Kleen** LABELS

When inquiring specify CP 117 — see handy form pages 2-3

possible by the development of new "accelerators" which coagulate the liquid latex in one minute instead of the several hours normally required. Fatty acids from coconut oil and palm oil, plentiful and cheap in Malaya, are used in the process and improve the product.

In the method developed by E. B. Newton and two other Goodrich scientists E. A. Willson and W. D. Stewart, treated latex and coagulant are fed onto a horizontally moving conveyor belt and pass down through a trough with sloping sides. Emerging from the trough in solid form, the rubber moves over the conveyor to the sheeting machines. Machined wets have been produced on the experimental machine within three minutes after they have been acidified.

Most plantations at present run latex into large rectangular vats where it is mixed with acids. Partitions are then inserted in vertical slots an inch and a half apart. The solidified latex usually is left over night to coagulate, then taken out in slabs. More than 80 of these partitions are used in a standard tank, and must be inserted, removed and cleaned for each batch of latex. (B. F. GOODRICH Co., Akron, Ohio.)

★

Clamp Truck Uses no Pallets, Skids in Moving Unit Loads of Cartons

Hydraulically operated pincers replace forks; adjustable to any size or type of carton containing light weight products

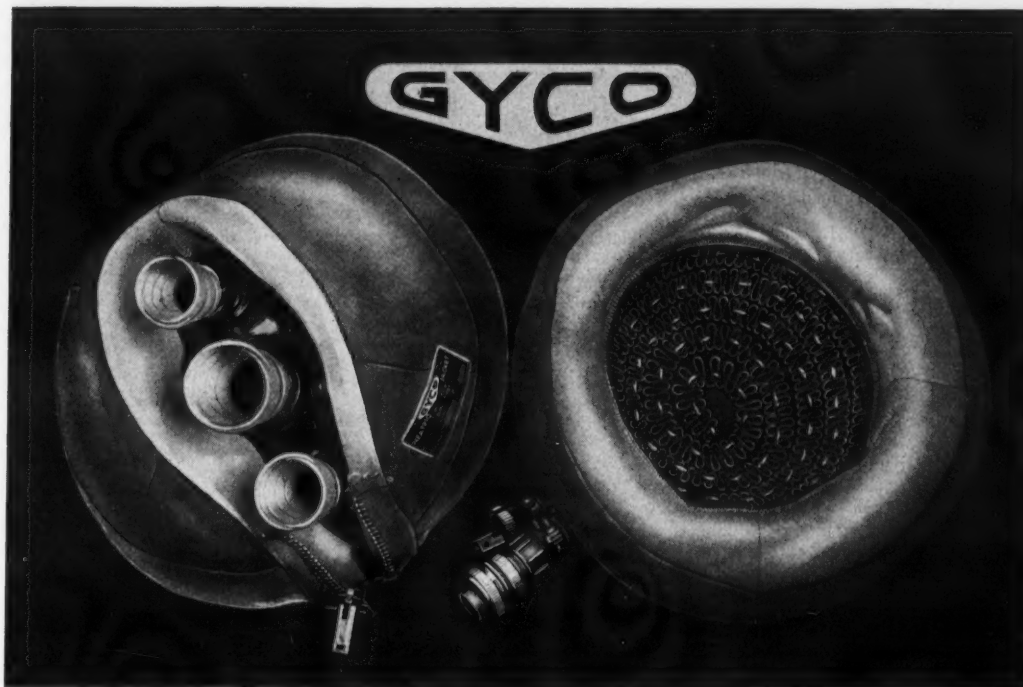


Clamp truck for tiering and hauling

An industrial truck has been designed especially to handle light and bulky cartons as unit loads without pallet or skid. The illustration shows how a typical load — 27 cartons of light bulbs is gripped securely by hydraulic "pincers" replacing the regular forks. The truck is so constructed as to be able to handle any size or type of carton such as those containing breakfast foods, wearing apparel, shoes etc. The need for pallets in tiering, detiering and hauling operations is eliminated. The clamping pads, adjustable in height, are mounted on a scissors-like frame opened by a hydraulic pump. Release of the hydraulic pressure allows the springs to pull the clamps together. The device was first installed on the truck seen in the photo — a 2000 pound capacity telescopic and tilting unit. (Automatic Transportation Co., 149 W. 87th St., Chicago 20, Ill.)

JANUARY, 1947

Now GYCO Jackets are Protected with Aluminum Vinyl Resin

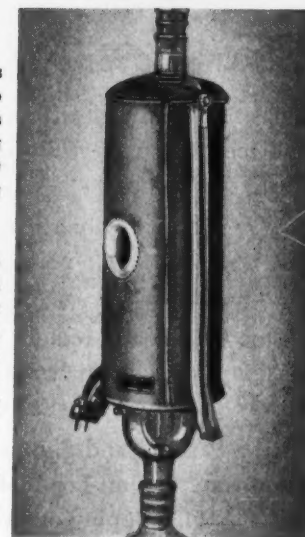


Patent Applied for

All GYCO Jackets now feature a new smooth exterior covering of glass cloth impregnated with an aluminum vinyl resin, highly resistant to most acids and laboratory reagents . . . at no extra cost. Plain glass fabrics used to cover heating jackets have always had the disadvantage of being soiled easily, and lacked an effective cleaning method. The new GYCO Heating Jackets maintain an attractive appearance despite frequent handling and long use.

In addition to flask heating jackets, the GYCO line includes jackets made to fit bottles, beakers, jars, funnels, Buechner funnels, resin flasks, or special shapes as ordered. GYCO Tubular Heating Jackets (shown at right) for heating fractionating columns or tubes are available for 25, 37, 51 and 71 mm diameters, in one and two foot lengths, and in two styles. Observation ports feature a built-in Pyrex window, preventing "cold spots" and possible "flooding." Where internal observation is not required, GYCO provides tubular jackets without windows.

For further details, sizes and prices of GYCO Jackets, write for Bulletin E-100.



GYCO Jackets are distributed exclusively by

SCIENTIFIC GLASS

APPARATUS COMPANY, Inc.
BLOOMFIELD, NEW JERSEY

When inquiring specify CP 118 . . . see information request blank, pgs. 2-3

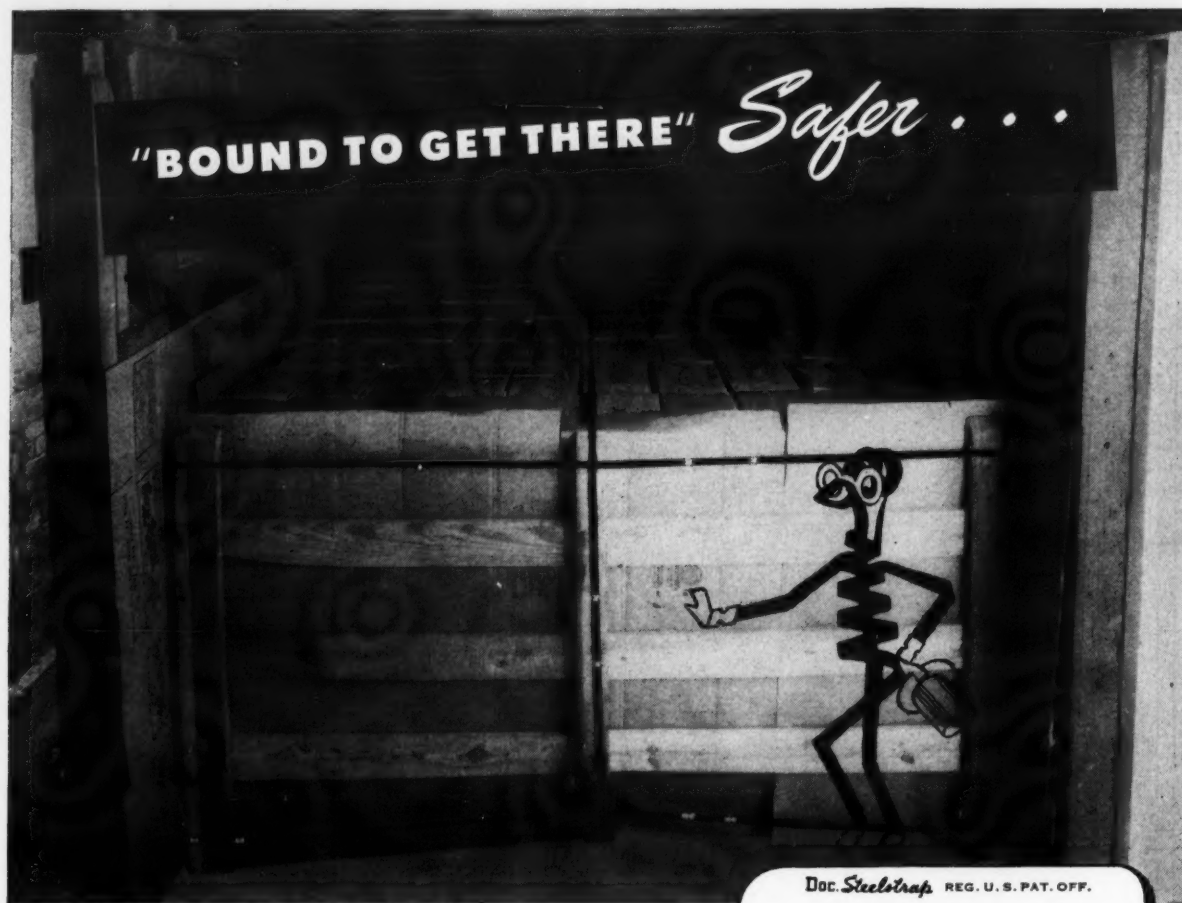


Photo of an actual shipment using Acme Unit-Load Principle.

with ACME Unit-Load Method

Damage in transit is nil when Acme Unit-Load Band combined with Acme Unit-Load Methods are used for carload shipments.

Cash savings in dunnage and labor accrue directly in most instances when modern Acme methods of car bracing are adopted.

Acme Unit-Load Methods take the hazards of everyday shipping right in stride . . . protect products all the way to the customer's door.

Acme Packing and Shipping Specialists will gladly demonstrate a Unit-Load Method tailored for safer, more efficient shipping of *your* products. Inquire now.

NEW YORK 7

ATLANTA

CHICAGO 8

LOS ANGELES 11

ACME STEEL COMPANY

ACME STEEL CO.
CHICAGO

Doc. Steeltrap REG. U. S. PAT. OFF.

TRANSIT HAZARDS ELIMINATED ON FOOD LOCKER SHIPMENTS

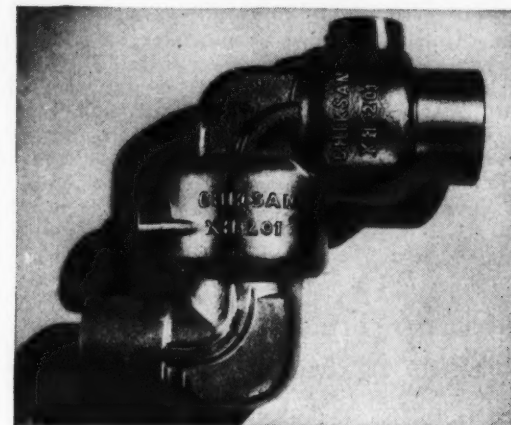
In carload shipping of metal food-storage lockers *without the usual protection of wood or paperboard containers* Acme Unit-Load Method efficiently turned the trick. Lockers arrived in excellent condition, unmarred and undented. Moreover, a cash saving of \$340 per car was realized.

Ideas

Ball Bearing Swivel Joint for Working Pressures of 12,000 psi

Packing element especially designed for this service and is self-adjusting

A swivel joint built for 12,000 psi working pressure has recently been announced by Chiksan Co., Brea, California. It provides the same low torque and positive packing seal-off incorporated in all the joints produced by this organization. Rotating members are steel forgings,



360° rotation of joint with low torque . . . no bolted flanges, locking rings, stuffing boxes

machined to close tolerances and with flame hardened ball races. Full 360° rotation with low torque takes place on two rows of hardened steel balls which also serve to hold the rotating members together under pre-regulated pressure. The packing element is specially designed for high pressure service and is self-adjusting. In common with this organization's other joints, the new type XH employs no bolted flanges, locking rings or stuffing boxes. There is nothing to tighten or adjust. High pressure lubricating fittings provide for positive lubrication of the bearings. Inside diameter is unobstructed, permitting full flow of liquids, gases and vapors with minimum friction loss and turbulence. End connections are of the high pressure, tapered thread type. This new high pressure swivel joint is for all high pressure services to 12,000 psi. It is the latest addition to a line of joints of more than 500 types, styles and sizes for pressures to 300 psi., 1000 psi., and temperatures to 500° F.

★

Wires .0059" Thick in Tire Plies Impart Strength, Dissipate Heat

Wires have tensile strengths ranging from 325,000 to 400,000 pounds per square inch

Tiny steel wires used extensively in heavy-duty tires during the war proved to be of great value in providing longer life for casings and conserving critical rubber. Now they are continuing to give heavy-duty tires longer life in the service of thousands of users. These wires are only .0059 inches thick and form plies or layers of

CHEMICAL PREVIEW

When inquiring specify CP 119 . . . see information request blank, pgs. 2-3

SMOKE PREVENTION

with the...

FYRITE CO₂ INDICATOR

The relationship of the CO₂ test to smoke prevention is very close. A boiler that smokes is a boiler that is burning fuel inefficiently. CO₂ percentage in the flue gases—easily and quickly measured with the FYRITE—is an accurate, dependable index of combustion efficiency.

Checking CO₂ content of the flue gases regularly with the FYRITE is your best assurance of continuously maintaining maximum combustion efficiency, which insures fuel economy, long furnace life and freedom from smoke nuisance. This freedom from smoke is doubly important now with smoke abatement ordinances being enacted in a rapidly growing number of localities.

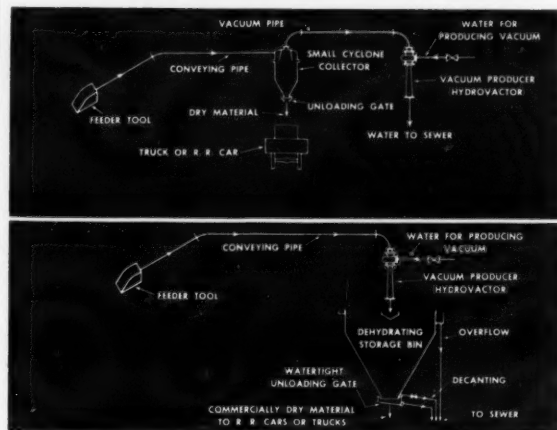
There is nothing tricky or complicated about a CO₂ test with the FYRITE—requires no skill or special training—there are no valves, clamps, or leveling bottle to manipulate—one test takes less than a minute. More than 13,000 in successful use.

Send for Bulletin 703.

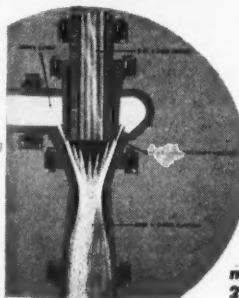
OXYGEN INDICATOR employing FYRITE principle, for direct oxygen analysis, also available. Ask for Leaflet 700.

BACHARACH
Industrial Instrument Co.
7000 BENNETT STREET
PITTSBURGH 8, PA.

When inquiring specify CP 120 — see handy form pages 2-3



Hydrovac Materials Handling No Moving Parts—Minimum Maintenance



The basic system consists merely of a portable feeding tool, a pipeline (Ashcolite) and a Hydrovactor which produces vacuum by means of converging high velocity water jets. No moving parts. Material may be discharged direct or pumped to dump or fill, or it may be collected dry or wet, as pictured above. Water may be recirculated, if desired. Ashcolite Pipe outlasts steel and cast iron, thus saving time and maintenance expense. Portable Feeder Tool operates on Non-Clogging, Windswept Principle. Send for Bulletin 744. **The Allen-Sherman-Hoff Co., 1433 Locust St., Phila. 2, Pa. Rep. in Most Principal Cities.**

When inquiring specify CP 121 — see handy form pages 2-3

JANUARY, 1947

Ideas

material which is saturated with rubber to form the inner core or body of the tire.

Three fine wires are twisted into a strand; six of these strands are laid around a central core to form a cord 1/32 inches in diameter. A number of cords are then placed parallel to each other and coated with rubber, producing a ply of extreme strength and resistance. When three or four of these plies, with the wires in each running at an angle to the wires in the other plies, a strong flexible foundation is afforded for application of the tread rubber. Four metallic plies are equivalent in strength and durability to approximately twenty fabric plies commonly used in heavy-duty tires. Although more rubber is necessary for one metallic ply than is needed to saturate one fabric ply the overall savings in rubber are of important proportions. At the same time, the metal sheath thus formed is highly resistant to punctures, bruises and blow-outs and the thinner structure provides greater resiliency and eliminates the creation of a large amount of heat, which is so destructive to rubber. The metal core ply also eliminates casing stretch, which results in lowering of the density of the rubber and contributes to excessive wear. The exceptional qualities of the wire make it suitable for other uses such as reinforcement for V-belts, power transmission belts and conveyor belts. (United States Steel Co., 208 S. La Salle St., Chicago 90, Ill.)

★

Insulating Board Made By Foaming Materials In Aqueous Solution

Present raw material cost under 20c per cubic foot

A new, low-cost insulating board weighs one to three pounds per cubic foot and ranks high among commercial heat insulations. The process of manufacture is simple and yields a board resistant to all destructive agencies. A quarter's worth of glue is the principle new material required to make more than a cubic foot of this board. The board has fair strength, although not enough to be used unsupported in structures. In thin layers the new product somewhat resembles flannel but as usually made, it is more like dried natural sponge which has been cut into slabs a foot or so square and an inch thick. By using different fillers, the characteristics of the product can be varied between wide limits and the curing process imparts to the glue high resistance to water, fungi, and other destructive agents.

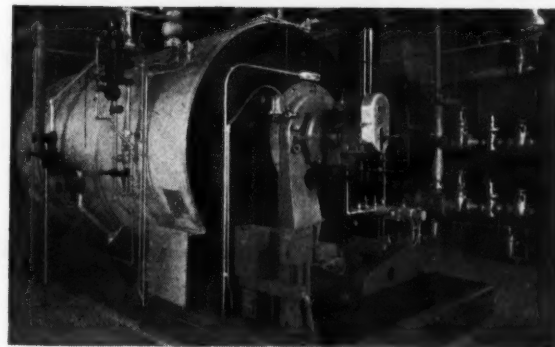
The product is suggested for insulating vehicles, railroad cars and trucks. The raw materials for "Foamboard," as the new product is called, are available in large tonnage at reasonable, stable price. These materials are mechanically foamed in aqueous solution and then dried to become water soluble and non-inflammable. The weight can be reduced below one pound per square foot, but it is usually above this value. By simple changes in manufacture, the size of air cells can be varied over a substantial range. The foam may have compounded with it synthetic rubber, asphalt, wood fibers, glass fibers and many other materials to give special properties. The product is odorless and can be cut with a knife, sawed and otherwise shaped. In one inch thicknesses, the material is flexible and elastic. Because structurally the cells in a large part are interconnected, it will absorb liquids when immersed. The present raw material cost is under 20 cents per cubic foot. (Foster D. Snell, 305 Washington St., Brooklyn 1, N. Y.)



STEAM costs can eat deeply into profits when steam loads fluctuate—or are intermittent. That's why it pays to have a steam plant designed to meet your steam loads most efficiently.

With a Cleaver-Brooks Steam Generator you are equipped for "roller-coaster" steam loads. Whether the demand is heavy or light—steady or variable—these custom-planned, sturdy, compact steam generators respond instantly and operate at a flat 80% efficiency with full or fluctuating load. A Cleaver-Brooks Steam Generator is thrifty with fuel at all times. Since it need not be "banked" during no load periods it saves this expense. Its low operating and maintenance costs, through the years, are established facts to many owners of Cleaver-Brooks steam generators. It will pay you to investigate—write for complete information.

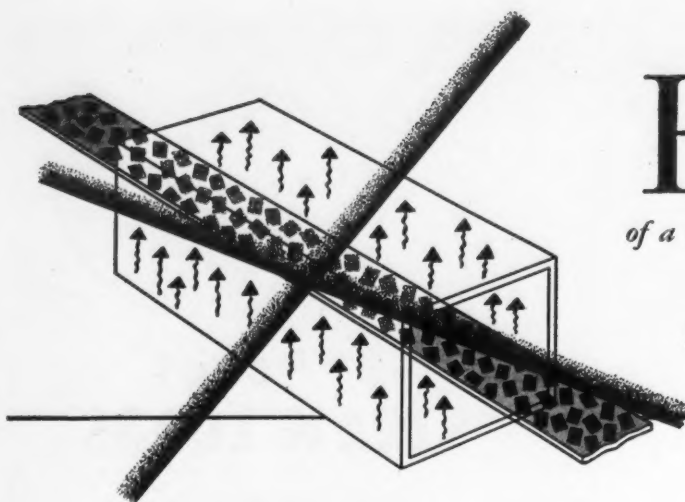
**CLEAVER-BROOKS COMPANY, 343 E. Keefe Ave.,
Milwaukee 12, Wisconsin**



WRITE on your business letterhead for the Free Steam Cost-Calculator — a ready-reference slide rule showing the comparative steam costs when using oil or coal as fuel.

Cleaver-Brooks
STEAM
GENERATORS

When inquiring specify CP 122 — see handy form pages 2-3



How to speed up dehydration of a macerated material without expanding his drying facilities was a problem that perplexed a food processor.

AGAIN... the answer is centrifuging

This case study is just one of the many applications in which centrifugal force as developed by AT&M Centrifugals has saved time, space and costs in the process industries. Now — while you're exploring new ways to lower unit production costs — investigate what centrifuging can do for you. A confidential study and recommendation by AT&M's experienced engineering service costs you nothing and does not obligate you in any way. The coupon will bring you evidence that AT&M Centrifugals can improve products at lower cost. AMERICAN TOOL & MACHINE COMPANY, 1425 Hyde Park Ave., Boston 36, Mass., 30D Church St., New York 7, N. Y.

SAVE TIME, SPACE AND COSTS WITH

A.T. and M. CENTRIFUGING

AMERICAN TOOL & MACHINE COMPANY,
1425 Hyde Park Ave., Boston 36, Mass.

Please send information on centrifuging applied to the following processes:

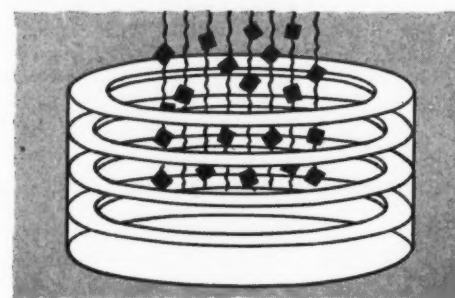
- ☐ Extraction ☐ Filtration ☐ Dehydration ☐ Coating
☐ Precipitation ☐ Sedimentation ☐ Impregnation

Write here any other process.....

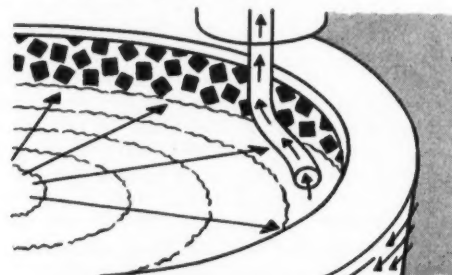
Name.....

Company.....

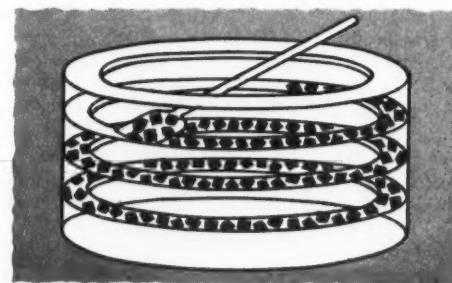
Address.....



AT&M specified a centrifugal with an imperforate basket and a built-in skimmer.



Centrifugal force, developed by high-speed rotation, builds up the solids on the baffled sides of the basket while the liquor is decanted over the top by the skimmer.



Then the cake, with most of its liquid removed, is plowed out and conveyed to the drier where drying time is greatly reduced.

Ideas

Matching Thermal Coefficients Permits Bond of Plastic, Metal

Method makes possible combination between large sections and over extreme temperature ranges

Satisfactory bonding between a plastic and a metal facing or metal reinforcement has been practically impossible because of differences in coefficients of expansion. Investigations at the National Bureau of Standards by P. S. Turner of the Plastics Section have shown that coefficients of thermal expansion of components can be matched, giving a bond between components resistant to temperature changes.

Bonds produced by adhesives fall into two classes: the rubbery or yielding bond and the rigid bond. The first category includes most thermoplastic cements, rubber cements, and combinations of thin rubber and layers and cements. These adhesives provide durable bonds between dissimilar materials at moderate temperatures. The rigid bond was generally proved unsatisfactory for such applications with the possible exception of cold setting cements of phenol-formaldehyde and ureaformaldehyde types. At reduced temperatures, however, the yielding adhesives lose their ability to eliminate stress concentrations by yielding with the dimensional changes of the materials bonded.

If it can be obtained, the rigid bond is superior for many purposes because it produces a stronger and less yielding product. For composite structural material subjected to extreme pressure changes, a stable rigid bond is imperative. The solution lies in matching thermal-coefficients of the components.

Mr. Turner has developed a formula which has been used successfully in a number of applications. For example, a mixture of polystyrene and aluminum oxide was determined in this fashion so that brass inserts were feasible. Brass inserts in ordinary polystyrene cause the polystyrene to crack as a result of the differences in thermal-expansion coefficients. Fused aluminum oxide was chosen for use in the mixture because it has a low coefficient of linear thermal expansion and a high modulus of elasticity compared to its density. Its choice for use with polystyrene was also determined by its desirable electrical properties, and there was no appreciable change in the electrical resistance of polystyrene on addition of the filler.

Calculations revealed that approximately 90 per cent of polystyrene and 10 per cent of aluminum oxide would be required to match the coefficients of linear thermal expansion of brass. Analysis with polarized light indicates that there are stresses in the pure polystyrene concentrated at the boundaries between the brass and polystyrene and these are sufficient to rupture the polystyrene. With about 10 per cent of fused aluminum oxide filler, such stress concentrations are absent and there is no evidence that the filled styrene has fractured. The brass was sufficiently well bonded to the polystyrene to permit sawing and machining of the composite material.

Rivet fillers for aluminum, used to cover the depressions caused by riveting have also been developed by this method as well as a mixture of glass fibres and phenolic resin designed to match aluminum alloy metal reinforcing plates. The technique permits the formulation of pigmented protective coatings that have satisfactory adhesion to the coated material. In general, the method provides information leading to the proper combination of materials for matching thermal coefficients, which

When inquiring specify CP 123 . . . see information request blank, pgs. 2-3

COTTON DUCKS AND FILTER FABRICS

One of
America's
Most
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Textile
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For The
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Industry

BURCOTT MILLS regularly supplies cotton ducks and filter fabrics for the following industries: Chemical, Oil & Wax, Dye-stuff, Cement, Cane & Beet Sugar, Food-Processing, Ceramic Processing, Paint, Mining, Quarry and Smelting. Just a few of the items for quick delivery from Chicago stock:

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40" 10.00 oz. Duck
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17.50 oz. Filter twill cloth

BURLAP—many sizes and weights arriving regularly from India.

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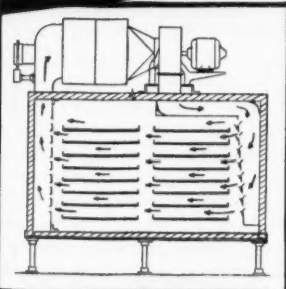
BURCOTT MILLS

622 W. Fulton Street

Chicago 6, Illinois

When inquiring specify CP 124 — see handy form pages 2-3

DRY PROCESS MATERIALS More Uniformly and Faster by Cross Flow Recirculation



This cabinet type oven permits loading trays of chemicals or other materials on close centers because the flow of recirculated air from the heater (steam, gas or electric) across the top of each tray produces uniform drying in minimum time.

Gehrich Cross-Flow Recirculation Heating is adaptable also to truck loading, tunnel type or belt conveyor ovens. Such users as Abrasive Co., American Viscose, Bakelite, Dayton Rubber, DuPont, Durez Plastics, Hercules Powder, N. J. Zinc, Norton Co., Schenley Distillers, U. S. Rubber and many others know the value of process drying in Gehrich Ovens. Get Catalogs 114 and 116.

GEHRICH OVENS

GEHRICH OVEN DIV.

W. S. ROCKWELL CO.

220 Eliot St. Fairfield, Conn.

When inquiring specify CP 125 — see handy form pages 2-3

Ideas

in turn yields stable bonds even between large sections and over extreme temperature changes. (National Bureau of Standards, Washington, 25, D. C.)

Hydraulic Accumulators Dispense Grease; Used As Surge Chambers

Neoprene bag makes possible light weight unit that withstands extreme service requirements



Cross section of accumulator shows bag and shell

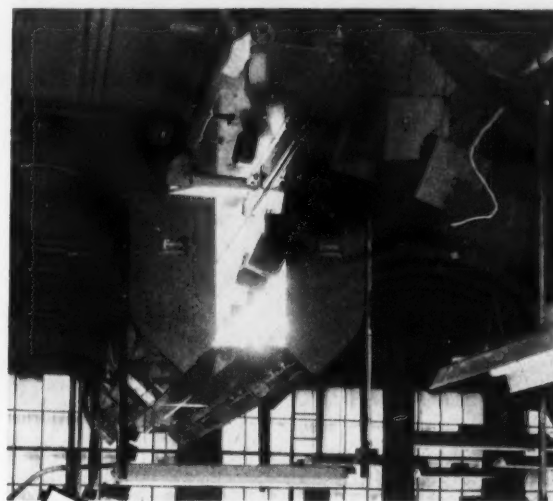
tion to that the bag must resist oil. These accumulators are proving useful in systems which have intermittent duty, where actuation is required for only a short period of time. In this application a very small pump and motor are employed to fill the accumulator to the required pressure and volume. The accumulator then does the work in the time limits required, and is refilled.

Applications of this type have been made in which a 1HP motor has replaced a 50 HP motor for intermittent service. (The total work done, of course, is the same for both motors; the smaller motor runs much longer to accomplish the same results.)

A new application for accumulators is in the dispensing of greases and oils. Grease is pumped into the accumulator and later discharged through a grease gun or hose at any place where lubrication is required. A simple, portable unit is provided for dispensing grease under extremely high pressure. In addition to serving as storage reservoirs, these accumulators are finding wide use as surge chambers on industrial hydraulic systems. They smooth out flow and pressure fluctuations and thus reduce chatter and vibrations. They are being successfully used on the hydraulic systems of milling machines, drilling machines, presses and lathes. (Greer Hydraulic Inc., 454 18th St., Brooklyn, N. Y.)

What might be termed a sort of hydraulic storage battery is offered in a device described as an accumulator. The basic part of the apparatus is a bag of durable, Neoprene filled with air or gas under pressure and compressed by the pressure of the oil. The requirements for this bag are exceedingly severe. The working pressure is 600 to 3000 pounds per square inch in the system. The temperature goes as high as 200 degrees F. A flex-life of 50,000 to 100,000 is required. Another specified requirement is a maximum stretch of 30 per cent in the shell and in addition

HOW 5,000 PLANTS CUT COSTS



Typical Example
of Savings with
INFRA-RED

PRODUCTION TRIPLED — France Mfg. Co., Cleveland, bakes the finish on transformer cases 3 times as fast with EVENRAY than previously with forced air drying. Baking time is only 5 minutes. 3,000 cases are baked in 8 hours with this system. Space is saved by suspending the Evenray oven from the ceiling.

ONLY FOSTORIA EVENRAY EQUIPMENT HAS ALL THESE ADVANTAGES —

- 1. Lower Unit Operating Cost** — Greater efficiency of gold reflectors requires lower connected load — provides maximum utilization of energy.
- 2. More Uniform Coverage** — Evenray equipment design gives extraordinarily even distribution of energy on products being processed — as little as 2% variation.
- 3. Maximum Temperature Range** — Delivers up to 125 BTU's per square inch per hour. Accommodates from 80 watt to 1000 watt lamps for fastest processing according to job requirements.
- 4. Maximum Energy Utilization** — Two-wall oven construction and gold interior reflecting surface provide most effective insulation; it puts the energy on the product.
- 5. Complete Line of Equipment** — Evenray models are available for spot heating or full ovens, utilizing clear or reflector type lamps; permitting a choice for best results depending on nature of product to be processed. Flexibility of construction permits quick and easy alteration or addition for production changes.
- 6. Approved Electrical Construction** — Listed under Re-examination service of Underwriters' Laboratories, Inc.



Fostoria invites your request for analysis of any baking, drying, dehydrating or pre-heating problem.

Write for Literature

Ask for brochure EV-1146 which pictures and describes many applications with Evenray Systems.

THE FOSTORIA PRESSED STEEL CORP.

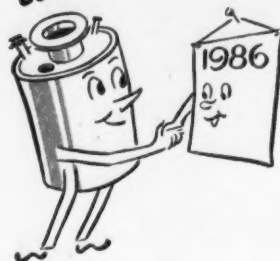
POSTORIA, OHIO

In Canada — Amalgamated Electric Corp., Ltd., and all Northern Electric Branches

When inquiring specify CP 126 — see handy form pages 2-3

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*Get All the advantages
the alloy offers*

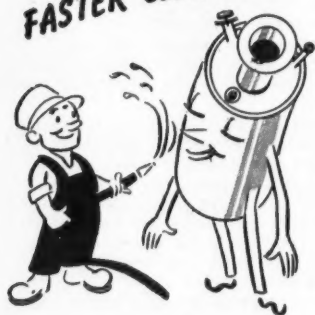
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It takes a specialist to transform stainless steel sheet into processing equipment that gives you the best out of the alloy. We work with stainless steel alloys exclusively. That means we're equipped to protect your investment in stainless steel processing equipment—know all the fabricating safeguards that give you the maximum benefits of the original alloy in your finished vessel. Consult with us on your requirements.

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VALUABLE BOOK
A request on your letter-
head will bring our
guide, "What to Look
for When You Specify
Stainless Steel for Your
Processing Equipment."



CORROSION RESISTANT PROCESSING EQUIPMENT



When inquiring specify CP 127 — see handy form pages 2-3



NEW LITERATURE ★

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

416-page Pump Engineering Data Book is Guide, Reference or Work Text

A 416-page, indexed handbook for pump-users and engineers contains detailed and complete information on all types of pumps, including descriptions of pump designs and uses, diagrams, charts, tables, photographs and engineering formulae. 38 pages on principles of pump engineering; 107 pages of engineering data; 9 pages of general information; 218 pages on specific pump types; 28 pages of pump accessories. Engineering data index covers flow of water in pipes and fittings, specific gravity, measurements of flow, miscellaneous hydraulic data, metals for corrosion resistance, pipe and fitting dimensions, operating efficiencies and costs, pump application and sizing, conversion factors, circumferences and areas of circles and miscellaneous information such as strength of bolts, weights and specific gravities, contents of horizontal and vertical tanks, HP transmitted by leather belting, capacity of reciprocating pumps and hydraulizing. A "use" index covers various industries, type of materials handled, usual fittings and a section reference for additional information. Pump purchasers, to mention only one group, will find this text an extremely useful reference and guide book. Hard cloth finish, pocket size 8-1/2 x 4-3/4". Copyrighted 1937, '39, '45 and '46, with revisions. Free to qualified engineers and pump users. Price to all others, \$2. Address all requests to manufacturer.

ECONOMY PUMPS, Inc., Dept. CP, Hamilton, O.

When inquiring specify CP 128 — see handy form pages 2-3

★

Recall Early Americans as Industry Taps Forests for Essential Oils

Many of us have forgotten that early Americans used the products of our forests to dye their own cloth, make their own soap, administer to the sick and brew various beverages. It is interesting, therefore, to note a 62-page bulletin entitled "Extractives from Northeastern Woods." Text reveals that many trees and shrubs of that region produce essential oils; materials obtained from roots, bark and other parts of plants. These are oily and volatile in steam. Cutting of black birch brush on a 10-year rotation, according to this source, probably offers higher returns than any form of forestry. It is pointed out that extraction and marketing of essential oils are open to improvement, but that there is a definite demand for such oils. Bulletin gives a comprehensive review of American and foreign literature on this subject, and summarizes in convenient form the extractives in the Northeast as covered by A. H. Downey of the essential oil firm of Magnus, Mabey and Reynard. The more important oils and their prices are indicated. Yields, apparatus, capital cost and operating budget for a small extraction plant are discussed, and figures are given indicating substantial profits for nominal starting capital, although it is emphasized that these figures should not be accepted without reservations, due to market fluctuations and other factors common to every

business. On page 33, text lists most important essential oils which can be obtained from the Northeast area in commercial quantities as juniper, sweet birch, wintergreen, sassafras, cedarwood, cedarleaf, hemlock, spruce and balsam fir. Appendix lists principal essential oil dealers in the US, and tabulates recent imports. This bulletin reproduces an earlier review now out of print, and includes papers presented at one of the council's quarterly meetings. Tannins, which are produced by another process, will be the subject of a subsequent study. Copies of Bulletin No. 9, "Extractives from Northeastern Woods," may be obtained for \$1 each. Remittances should be mailed direct to the council, address given below.

NORTHEASTERN WOOD UTILIZATION COUNCIL, Dept. CP, Box 1577, New Haven 6, Conn.

When inquiring specify CP 129 — see handy form pages 2-3

★

Drill Handbook Fits Work Pocket

Men who use, sell and care for tools will be interested in this 24-page, pocket-size booklet entitled, "Engineering Data on the Care and Operation of Celfor Drills." Complete with engineering drawings, text presents technical information intended to aid in the selection of proper tools, maintenance of correct balance between tool capacity and job requirements, and promotion of proper methods of tool maintenance and rehabilitation. Charts include speeds for fractional, wire and letter sizes, decimal equivalents letter and wire sizes, feeds, and a drill "trouble shooting" chart with page references. Originally prepared as a special section of manufacturer's new catalog, this material was compiled as a separate booklet. Copies may be obtained by making request on business letterhead.

CELFOR TOOLS, division of CLARK EQUIPMENT COMPANY, Dept. CP, Buchanan, Mich.

When inquiring specify CP 130 — see handy form pages 2-3

★

Machines Fill Jars, Cans, Tubes; Also Close and Seal

Factual, 24-page booklet covers hand-operated, semi-automatic and full-automatic machines for filling jars and cans; also tube filling, closing and sealing machines equipped for handling highly viscous materials or to fill, close and seal unusually light, oily products; "Fat-filling" machines, and a new machine developed to package granular materials in tubes. From this wide selection manufacturers will find not only equipment to fill immediate needs, but also units so designed as to facilitate expansion, at minimum costs, to package products other than that for which equipment was originally purchased. A list of nationally-known users is included. Versatility and adaptability are stressed. Illustrations and complete specifications accompany descriptions of individual machines. Special pressure type, impeller type or jacketed hoppers furnished where needed. Hot water or electrically-heated hoppers, with rheostat control, are available. Goose-neck, non-drip and other type special nozzles for specific products and containers. User is offered a wide variety of filling and sealing methods. All machines will make several types of closures, and all can

CHEMICAL PREVIEW

New Literature

be fitted with parts to make Westite Hermetic Closures. This closure is leak-proof, airtight, and makes possible use of tubes for many products formerly impossible to package successfully in this manner. Write for Catalog No. 908A.

F. J. STOKES MACHINE CO., Dept. CP, Tabor Road, Philadelphia 20, Pa.

When inquiring specify CP 131 — see handy form pages 2-3

★

Machines Feed Materials Accurately

Constant-weight and volumetric feeders for accurate feeding of materials used in chemical, mining and industrial fields are fully described with specifications, diagrams and pictures in a 12-page bulletin. The constant-weight feeder maintains constant delivered weight of material to machine being fed, using a pivot arrangement. Feed weight may be controlled by adjusting counter weight on pivot arm, or by variable speed drives controlling belt speed. Is adaptable to vari-speed or electronic drives, and feed rate can be controlled remotely. Addition of indication and recording devices enables feeder to be used as weight recording device. Automatic control of feed rate to grinding mills may be achieved by use of "electric ear," described in catalog. Three types of volumetric feeders are described: belt, disc, and non-flooding. Widest use of disc type is in feeding damp, sticky materials. Volumetric feeders may be equipped with variable speed drives and remote controls, but not with weight recording devices. Catalog deals principally with the constant-weight feeder, listing advantages, principle of operation, construction, capacity regulation, controls and remote control, also describes types of rate-indicating and weight-recording instruments, and their application. Capacities and dimensions shown in tabular form. When writing, request Catalog 33-D.

HARDINGE COMPANY, Inc., Dept. CP, 240 Arch St., York, Pa.

When inquiring specify CP 132 — see handy form pages 2-3

★

Design Metal, Asbestos Gaskets for High Temperatures, Pressures

Complete illustrated description of this gasket manufacturer's entire line, including standard and special types, of various construction and different materials and metals, is covered by a well-planned, file-sized catalog. Its 30 pages of "spiral wound" gaskets for industrial, marine, chemical, food, petroleum and power plant applications cover all temperature and pressure requirements encountered in these fields. Styles listed include spiral wound metal asbestos, plain and corrugated metal with or without asbestos filler, metal washers, stampings, dye cut soft material such as rubber, cork, fibre and compressed asbestos. Handy gasket engineering reference tables give comprehensive data on sizes, shapes and temperature conversion along with other pertinent gasket information. Ajax Spiral Wound Gaskets are described as being constructed of one continuous strip of preformed metal, wound spirally from inside to outside with a cushion of filler inserted between each metal ply or lamination in the spiral. A "U" shaped groove in the metal provides interlocking feature and "breather space." Request Catalog 303.

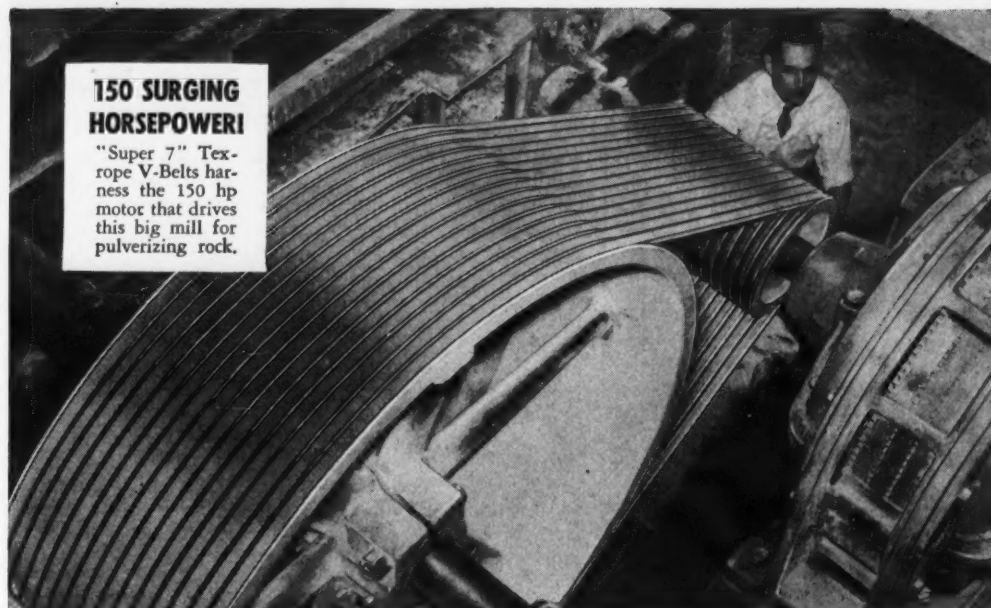
UNITED STATES GASKET COMPANY, Dept. CP, 618 N. 10th St., Camden, N. J.

When inquiring specify CP 133 — see handy form pages 2-3

JANUARY, 1947

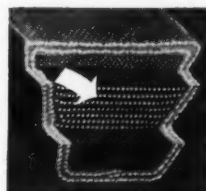
150 SURGING HORSEPOWER!

"Super 7" Texrope V-Belts harness the 150 hp motor that drives this big mill for pulverizing rock.



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fish lines. Laid row on row and imbedded in heat resistant rubber compound, they provide a powerful load-carrying element.

2. **TOUGHER COVER.** Rugged duplex construction protects the carcass of "Super 7" belts from wear and dirt.

3. **HEAT RESISTANCE.** All "Super 7" V-Belts are designed and built to give high resistance to heat.

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gree of resiliency necessary for long belt life and smooth power transmission.

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6. **ACCURATELY MATCHED.** Every belt weighed, measured and carefully inspected before being sized and packed.

7. **ENGINEERING LEADERSHIP.** "Super 7" Texrope V-Belts represent 27 years of research and experience — by Allis-Chalmers, originator of the Multiple V-Belt Drive.

There are FIVE types of "Super 7" Texrope V-Belts, to meet every operating requirement: *Standard* — *Heat Resisting* — *Oil Resisting* — *Oil Proof* — and *Static Resisting*. Call your Allis-Chalmers office or dealer. ALLIS-CHALMERS, MILWAUKEE 1, WIS.

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Textsteel, Texdrive, "Magic-Grip" — sheaves in a full range of sizes, grooves.



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Exact variations in speed, stationery or motion control.



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Speed variations up to 375% at the turn of a crank.



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TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.



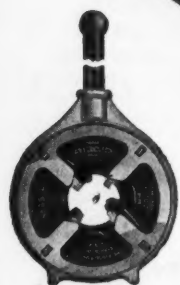
When inquiring specify CP 134 . . . see information request blank, pgs. 2-3

**Thread pipe with
almost automatic
speed and ease...**

RIGID

No. 65R

**10 Second Size
Adjustment
Instant-Setting
Workholder**



*Extra convenience
... it stands up!*

● Top speed in threading 1" to 2" pipe—and least monkey business getting ready—that's the self-contained No. 65R, widely popular everywhere. Workholder gauge-plate turns instantly to size—only 1 screw to tighten on pipe, no bushings to bother with. High-speed steel chasers set to size in 10 seconds, cut smooth perfect threads as if steel pipe were made of lead. You enjoy using this durable all-steel-and-malleable No. 65R—at your Supply House.

RIGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP 135 — see handy form pages 2-3

Page 50

New Literature

Bulletin Gives Technical Data on Armored Rotameters

Users of high pressure flow rate instruments will find manufacturer's catalog section 40-A contains data relating to selection, design and dimensions of armored, variable-area flow rate meters expressly suited for high operating pressures and temperatures. Designed specifically for use where possibility of liquid hammer or handling of hazardous gases or liquids makes use of "exposed" glass tube rotameters dangerous or impractical. Valve body in-line construction permits direct horizontal installation into piping system. May be obtained as standard flow rate indicating meter or as recording or recording-controlling or totalizing meter with readings at meter or remote location. Catalog includes photographs; schematic diagrams; secondary instruments for recording, controlling, integrating; alarm devices; rotameters for direct insertion in vertical lines; special armored rotameters, listing pressures and temperatures; dimension tables and rotameter capacity guide. Copies of technical bulletin 40-A may be obtained by writing.

FISCHER & PORTER COMPANY, Dept. CP, 9E-7, Hatboro, Pa.

When inquiring specify CP 136 — see handy form pages 2-3

★

Double-pass Steel Firebox Boilers Built for Stoker, Oil, Gas Firing

Eight-page folder describes manufacturer's line of riveted or welded double-pass steel firebox boilers, designed especially for stoker, oil or gas firing. Ranging in capacity from 26 to 305 hp, they are made in three series: RM-A with all 3" fire tubes, RM-B with 4" direct tubes and 3" return tubes, RM-C with all 4" tubes. Specific advantages claimed: Brownell-patented tapered water legs, liberal furnace volume, ready accessibility to interior, efficient radiant heat absorption, complete equipment of valves, gages, etc. Manufacturer offers own ram or worm-type stokers for mechanical firing of RM boilers. Catalog is fully illustrated with photographs, diagrams and sectional views. Tabulated ratings are in conformity with Steel Boiler Institute's Code, assuming average heat values for coal, fuel oil or natural gas. Complete dimensions and details. Sectional drawings show arrangement of RM boiler for oil or gas firing. Request Bulletin RM-1.

THE BROWNELL COMPANY, Dept. CP, 442 N. Findlay St., Dayton 1, O.

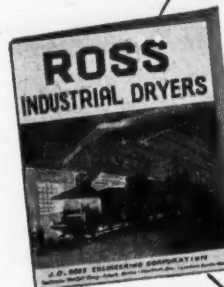
When inquiring specify CP 137 — see handy form pages 2-3

★

Versatile 3-in-1 Screen Has Coke, Asphalt, Dewatering Applications

A 12-page bulletin describes and explains the Eliptex Screen, a materials handling machine with three separate components. These are (1) a horizontal component which moves material across deck quickly, giving high capacity, (2) a vertical component which separates materials into sizes and keeps it moving, (3) an elliptical component for sharpest possible sizing. With these combined components, screen can be installed horizontally to save headroom. Components and mechanical features are fully described, with specific applications for dewatering, heavy-media dewatering and asphalt plants defined in detail. Also for coal, coke, aggregates and other plants. Dimensions and clearances in single,

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Get this new book that explains how modern drying methods increase output and improve quality of products of major industries.

Get reliable recommendations of a Ross engineer for improving your processing with equipment designed to make its operation profitable to you.

Ross Bulletin No. 131 describes most successful drying method used in each of the major manufacturing industries. Write for your copy. Address our nearest office.

Ross Dryers are individually designed for the particular requirements. The Ross nameplate signifies a "custom made" dryer.

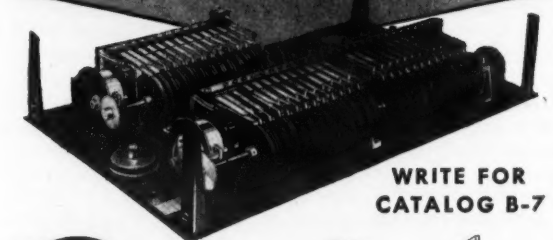
ROSS J. O. ROSS ENGINEERING CORPORATION
DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS
350 MADISON AVE., NEW YORK 17, N. Y.
Chicago - 6, Ill. • Boston - 9, Mass. • Detroit - 3, Mich. • Los Angeles - 14, Cal.
ROSS ENGINEERING OF CANADA, LIMITED MONTREAL-19, P. Q.
CARRIER - ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

When inquiring specify CP 138 — see handy form pages 2-3

Sequence Control AS YOU WANT IT

Here's simplified, automatic sequence control for a series of three or more related machine or process operations. Custom built and assembled from standard parts to your sequence, duration and frequency control requirements. Total time cycle and "make and break" periods adjusted easily. Controls accurately as many as 50 or more load circuits... as few as two. Install it on new or present equipment.

MULTIPLE-CIRCUIT CAM TIMER



WRITE FOR
CATALOG B-7



AUTOMATIC TEMPERATURE CONTROL CO., INC.
100 N. ST. & GERMANTOWN AVE. • PHILADELPHIA 22, PA.

When inquiring specify CP 139 — see handy form pages 2-3

CHEMICAL PREVIEW

New Literature

double and triple deck types are clearly stated. Features stressed by literature: sharp sizing, high capacity, freedom from blinding, savings on needless additional equipment. To obtain this literature, write for Bulletin 111-A.

ROBINS CONVEYORS, Inc., Dept. CP, Passaic, N. J.

When inquiring specify CP 140 — see handy form pages 2-3

★

46-Page Text Explains Piping and Storage of Industrial Fuels

"Piping of Industrial Fuels" is the title of a 46-page text concerning calculations, data and step-by-step instructions on design and installation of gas, oil and gasoline piping in industrial plant projects, including fuel oil and gasoline storage. Author, Harry D. Unwin. Text is one of a reference series for engineers and other interested parties. Chapters on gas piping cover applications and distribution, pipe sizing, and liquefied petroleum systems; those on oil piping concern fuel oil and its storage, distribution and control, and pipe sizing; while gasoline piping is discussed under the general headings of distribution and storage, pipe sizing, and controls and safeguards. Complete with illustrations, diagrams, charts, tables and formulas. Practical applications are given in problem-analysis form. Various methods and systems are thoroughly explained and interestingly presented. Remittances of \$1 per copy should be mailed direct to address given below.

HEATING AND VENTILATING, Dept. CP, 148 Lafayette St., New York 13, N. Y.

When inquiring specify CP 141 — see handy form pages 2-3

★

Who Uses Synthetics? This Tells You!

Four-color, non-technical, illustrated booklet tells how manufacturer's explosives, cellulose products, chemical cotton, paper makers' chemicals, synthetics and naval stores are utilized in 12 major industries. Industries covered include adhesives, protective coatings, synthetic fibers, plastics, soap and disinfectants, insecticides, rubber, ink, construction, textiles, paper and mining. In addition, a list of 41 industries, and products of this manufacturer utilized by each, is included. 17 pages. Write for booklet, "A Trip Through Hercules Land."

HERCULES POWDER COMPANY, Dept. CP, Wilmington 99, Del.

When inquiring specify CP 142 — see handy form pages 2-3

★

Acid-resistant Aprons, Sleeves, Coats are Featherweight, Transparent Plastic

Illustrated pamphlet shows styles of aprons, sleeves and coats made from feather-weight, transparent "Oil-Chem" plastic sheeting, said to afford maximum protection against alcohol, petroleum, oils, grease and such concentrated acids as acetic, chlorosulfonic hydrofluoric, nitric and sulphuric acid, also ammonium hydroxide, chloroform and sodium hydroxide. Water-proof. Material is described as clear and pliable, not a coated fabric, about .008" thick, extremely durable and long wearing. Copies of "Gardwell 'Oil-Chem' Aprons, Sleeves and Coats" will be mailed on request.

SAFETY CLOTHING & EQUIPMENT CO., Dept. CP, 7016 Euclid Ave., Cleveland 3, O.

When inquiring specify CP 143 — see handy form pages 2-3

JANUARY, 1947

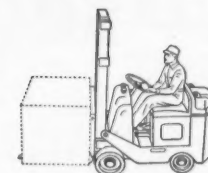


How to Run Circles Around Competition

In most plants, handling costs are too high. Reduce handling costs and you reduce production costs . . . reduce production costs and you increase profit margins . . . and increased profit margins always give you a head start on competition.

Let's go back to the beginning: You can reduce handling costs to a minimum with a Towmotor Fork Lift Truck, designed for 24-hour, full-power service . . . lifting, transporting and stacking all types of materials and products throughout production and distribution.

There's a Towmotor Fork Lift Truck or Accessory that can bring your handling costs down. Send for a Pocket Catalog.



SEND for special bulletins describing the TOWMOTOR

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RAM • OVERHEAD GUARD

TOWMOTOR CORPORATION
Division 23, 1226 East 152nd Street, Cleveland 10, Ohio



TOWMOTOR

FORK LIFT TRUCKS and TRACTORS

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

When inquiring specify CP 144 . . . see information request blank, pgs. 2-3

You should have this
FREE BULLETIN

Technical Bulletin T-6
**THE RESISTANCE of NICKEL and
ITS ALLOYS to CORROSION
by CAUSTIC ALKALIES**

... if you handle CAUSTICS

Here are 20 pages of practical data for users of caustic alkalies. You'll want to have a copy handy when...

- caustics cause rapid corrosion of your equipment
- metallic contamination threatens product purity
- you want to hold down equipment costs.

In addition to discussing nickel and its alloys, this bulletin contains information on the resistance of other metals to corrosion by various concentrations of caustic solutions.

Supplementing the easy-to-read text are a number of tables and charts, as well as photographs of typical equipment. Several of the principal caustic-consuming industries are also briefly described.

Write now for your free copy of this valuable guide. Simply ask for Technical Bulletin T-6. The International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y.

NICKEL  ALLOYS

MONEL "K" MONEL "S" MONEL "B" MONEL "KN" MONEL "INCONEL" NICKEL "L" NICKEL "Z" NICKEL "C"
Sheet...Strip...Rod...Tubing...Wire...Castings...Welding Rods (Gas & Electric)
*Reg. U. S. Pat. Off.

When inquiring specify CP 145 — see handy form pages 2-3

YOU NEED THIS

**SHRIVER
FILTER PRESSES**

**NEW
FILTRATION
BOOK**

**Tells How To
Recover Solids
Clarify
Decolorize
Wash the Cake
Partially Dry
Thicken
Extract**

- Tells How To**
- Select the Type of Filter Press You Need.
 - Determine Approximate Filter Cost.
 - Use the Filter to Best Advantage under Desired Operating Conditions.

Write for a Copy

T. SHRIVER & COMPANY, Inc.
846 HAMILTON STREET · HARRISON, N. J.

When inquiring specify CP 146 — see handy form pages 2-3

New Literature

Atomizing and Tray Type Deaerators Equal in Performance, Different in Application

Originally developed for marine use, where the pitch and roll of the ship made tray type deaerators impractical, atomizing type deaerators are also used in connection with hot process water softeners by making the atomizer an integral part of the sedimentation tank, and to heat and deaerate water supplies which otherwise would cause deterioration of cast-iron trays. A 20-page, illustrated manufacturer's text describes this equipment, pointing out that performance of both tray and atomizing types is identical, and that latter was designed primarily to satisfy conditions where tray types were inapplicable or disadvantageous, as in the case of marine service and deaeration of water that is corrosive or encrusting. Contents include principle of operation, water flow and steam flow, with diagrammatic drawings; a discussion of atomizing vs. tray deaerators; advantages of manufacturer's equipment, which points out that steam pressure drop is substantially constant regardless of load; discussion of this type deaerator for industrial plants and as an integral part of hot process softeners. Cross-sectional views of deaerating hot process softeners for capacities up to 12,000 gph. designed for lime and soda treatment with supplementary phosphate; 14,000 gph and higher for carbonate water supply, and a combination hot process softener for very soft water supply in which deaeration precedes softening, and condensate is heated and deaerated separately. Final pages concern accessories and marine deaerating heaters. Further operational diagrams show various installations of vertical and horizontal deaerators. When writing, ask for publication No. 4160.

COCHRANE CORPORATION, Dept. CP, Philadelphia 32, Pa.

When inquiring specify CP 147 — see handy form pages 2-3

"Production and Maintenance Cleaning" is 20-page Pocket Reference

"Production and Maintenance Cleaning" is a 20-page, paper-backed manual and handbook designed for ready pocket reference on procedures, practice and compounds for every type of production line and maintenance cleaning. Included are recommendations for alkali cleaners, electrolytic cleaners, emulsion cleaners, paint and enamel removers, rust removers, carbon removers, bright-dips, burn-off and vapor solvent degreasing. Proper compounds and dilutions also are suggested for every type maintenance cleaning such as hand soap, floor cleaner, steam cleaner, carbon remover, rust remover, drain cleaner and many others with special applications. Alphabetically indexed for quick reference. Request should be made on company letterhead.

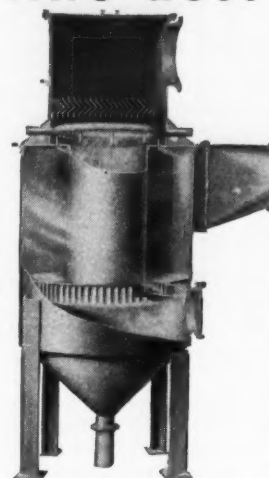
PHILLIPS CHEMICAL COMPANY, PRODUCTION METAL CLEANING DIVISION, Dept. CP, 3465 W. Touhy Ave., Chicago 45, Ill.

When inquiring specify CP 148 — see handy form pages 2-3

Therm-O-Tile Conduit Surrounds Underground Piping With Air

Therm-O-Tile conduit which keeps underground pipe lines dry and surrounded by air is fully described, illustrated and specified in a four-page bulletin. One particularly interesting portion relates to waterproofing of Therm-O-Tile for submerged conditions. Advantages

RID your plant of fine dust and fumes



Cut-away view of Type "S" Hydro-Clone.

**"Wetting is True
Suppression"**

Whiting Type "S" Hydro-Clone suppresses fine dust and fumes with water. It absorbs obnoxious gases and reduces dust particles to harmless sludge. The sludge-laden water drains to a tank where sludge settles out before the water is recirculated.

The unit is self-cleaning, and has no moving parts, screens, cloth bags, or spray nozzles—hence maintenance is eliminated.

The Type "S" Hydro-Clone will handle air or gas at temperatures up to 1200 F. Available in capacities from 2,000 to 30,000 cfm. Write for Bulletins FY-110 and FY-114.

**WHITING
CORPORATION**

15667 Lathrop Ave.
Harvey, Illinois

When inquiring specify CP 149 — see handy form pages 2-3

Genuine BascoTEX PLASTIC APRONS

**DEFINITE PROTECTION
against oil, acid, water,
alkalies
Will not crack or peel
No Laundering—just
wipe off with damp cloth**

**20-MILL PLASTIC
10 Times Stronger
than cloth
Costs Only 1 cent
About 1 a day**



Free Sample Swatch on Request
ASSOCIATED BAG & APRON CO.
220 W. Ontario St., Chicago 10, Ill.
SUPerlor 5809

PRICES SIZES COLORS

WHITE—4 Mill Plastic

27 x 36	.....	\$6.62 per doz.
30 x 36	.....	7.53 per doz.
36 x 40	.....	7.96 per doz.
36 x 44	.....	8.85 per doz.
Full Length Sleeves	6.00 per doz. pr.	

BLACK or WHITE—8 Mill Plastic

27 x 36	.....	\$ 9.00 per doz.
30 x 36	.....	9.75 per doz.
36 x 40	.....	11.15 per doz.
36 x 44	.....	13.65 per doz.
Full Length Sleeves	\$10.65 per doz. pair	

Leggings, Hip Length

\$13.10 per dozen pair

BLACK—12 Mill Plastic

27 x 36	.....	\$10.25 per doz.
30 x 36	.....	11.15 per doz.
36 x 40	.....	14.25 per doz.
36 x 44	.....	15.80 per doz.
Full Length Sleeves	12.90 per dozen pair	

Leggings, Hip Length

23.50 per dozen pair

BLACK or WHITE—Extra Heavy 20' Mill Plastic

27 x 36	.....	\$14.20 per doz.
30 x 36	.....	15.50 per doz.
36 x 40	.....	20.15 per doz.
36 x 44	.....	22.60 per doz.
Full Length Sleeves	\$14.25 per doz. pair	

Leggings, Hip Length

\$25.75 per doz. pair

All Prices F.O.B. Chicago.

Minimum order 1 dozen

ORDER BY PHONE OR MAIL

When inquiring specify CP 150 — see handy form pages 2-3

CHEMICAL PREVIEW

New Solutions

are described as permanent dry insulation; unvarying efficiency; greater thermal retention since pipes are surrounded by air rather than heat-conducting damp earth; permanent grade without settling or sagging; exceptional strength; low final cost; multi-purpose foundation in form of permanent concrete slab which acts as "side-walk" for construction forces, supporting piping and tile directly and containing a drainage channel as an integral part, giving internal drainage. An asbestos separator plate separates channel from insulation when fibre insulation is used. Therm-O-Tile may be installed wherever central or district heating is applicable. Some installations have used nearly two miles of conduit. Literature includes photographs of actual installations, cross-sectional diagrams and full instructions for making installation. A copy of Bulletin No. 461 will be mailed on request.

H. W. PORTER & COMPANY, Inc., Dept. CP, 818-S Frelinghuysen Ave., Newark 5, N. J.

When inquiring specify CP 151 — see handy form pages 2-3

★

File-folder Contains Sample Polish Cloths, Lists Metallurgical Abrasives; Catalog Describes Specimen Dryer

Metallurgists and metallurgical chemists will find this convenient, file-folder size brochure containing nine clipped-in sample swatches of polishing cloths in various colors and textures is designed not only for immediate needs but for future reference. Printed on heavy, folder-weight, white stock, tabbed for filing. Upper left, inside page lists polishing cloths and catalog numbers. Opposite page contains 1-3/4" square sample patches of materials, arranged in order of quality. Size and price noted under each sample. Abrasive materials, with specifications and price, are carried on lower left-hand page. For preparing metallurgical specimens. Folder may be obtained by metallurgical laboratories when requested on their letterhead. Manufacturer also offers literature on specimen dryer supplying non-pulsating, hot or cool air blasts at flip of finger. Light weight, black finish, fully insulated, adjustable base, max. load 5 amp., operating on 115 volts, AC or DC. To obtain literature on latter item, specify Catalog No. A53-530 Specimen Dryer.

BURRELL TECHNICAL SUPPLY CO., Dept. CP, 1936-42 Fifth Ave., Pittsburgh 19, Pa.

When inquiring specify CP 152 — see handy form pages 2-3

★

Cooling Coil Catalog Covers Subject Completely

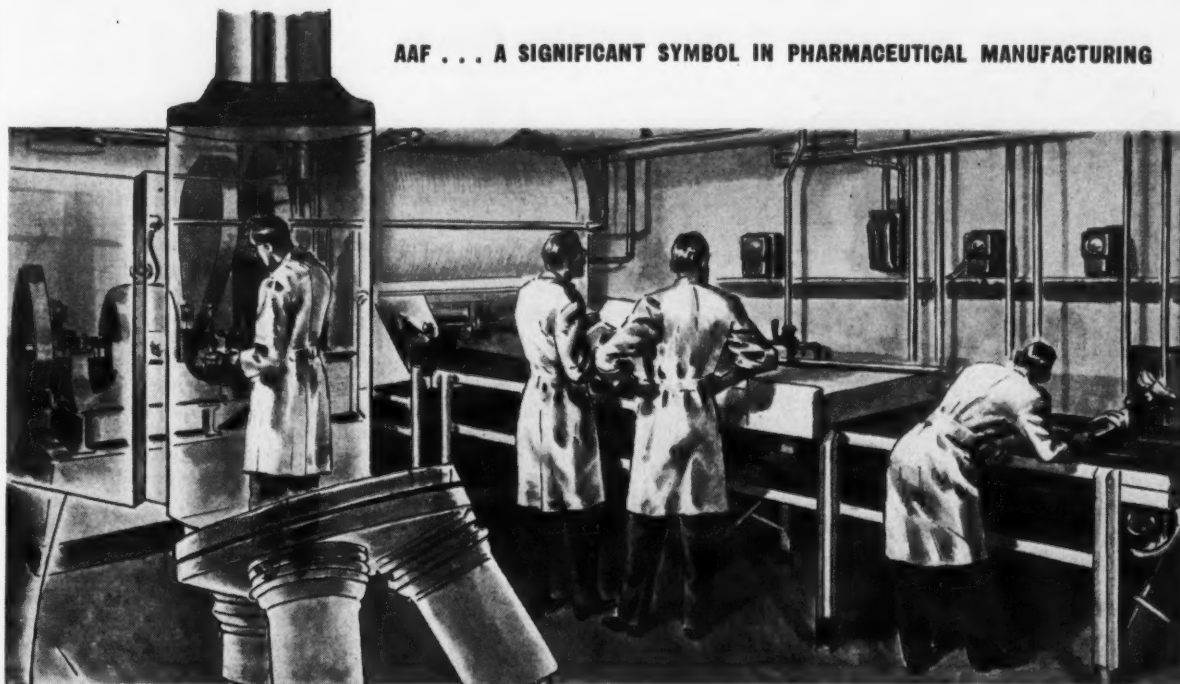
Clear, concise tabulations and complete refrigeration data, as well as complete engineering information, are contained in a 20-page catalog describing fin coils and custom-built air conditioning units for low temperature cooling. Refrigeration engineers should find it valuable as an aid in selecting coils, and for such installations as walk-in coolers, display cases, florist boxes and air conditioning. Specifications include length of case, fin space, number of coils required, overall dimensions, surface in square feet, BTU capacity per hour per degree, shipping weights and prices. Fully illustrated and indexed. Write for Catalog No. 120.

REMPE COMPANY, Dept. CP, 340 N. Sacramento Blvd., Chicago 12, Ill.

When inquiring specify CP 153 — see handy form pages 2-3

JANUARY, 1947

AAF . . . A SIGNIFICANT SYMBOL IN PHARMACEUTICAL MANUFACTURING



MICROSCOPIC *Prima Donna!*

PENICILLIN . . . This miracle drug, like so many modern products affecting our daily living, must be made under the most exacting hygienic conditions.

Air, in contact with the culture in the tank method of production, in the incubation room, and in the packaging room, must be free—not only from minute dust particles—but from airborne bacteria as well. For this microscopic Prima Donna brooks no interference from organisms outside her own temperamental sphere.

Into this complex air cleaning problem, AAF Electronic precipitators have introduced positive protection . . . have assured prophylactic cleanliness, making possible sufficient Penicillin production to meet the demands of medical science.

Thus, AAF has completed another chapter in the story of society's endless fight against dust . . . one of the five greatest natural enemies of man. American Air Filter Company, Inc., 106 Central Avenue, Louisville 8, Kentucky. In Canada: Darling Bros., Ltd., Montreal, P. Q.

AAF

ELECTRONIC

DUST PRECIPITATION

for INDUSTRY

*Note to
Architects and
Engineers:*

In line with the need for super-clean air in the manufacture of many chemicals, AAF has developed three types of electronic filters, each providing a different method of maintenance . . . the Electro-Matic, self cleaning; Electro-Coil, washable; and the Electro-Airmat, dry type with replaceable media. Send today for free literature and engineering data.

When inquiring specify CP 154 . . . see information request blank, pgs. 2-3

**A CLEAN SWEEP
OF THESE
Trouble Makers**



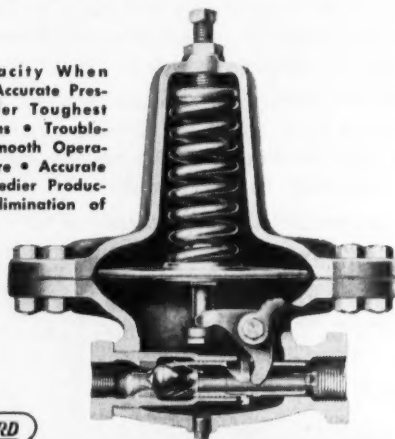
**IT'S EASILY DONE
with the**

**CASH STANDARD
Streamlined TYPE
1000
PRESSURE
REDUCING VALVES**

OUT go these plant pests like ordinary trash. The trouble-free, low-cost-performing CASH STANDARD Streamlined Type "1000" Pressure Reducing Valve causes these trouble makers to quickly become scrapped... permanently. These little fellows who ordinarily disrupt things can't stay on the job because with type "1000" Streamlined performance there's nothing for them to do.

Send for a copy of Bulletin 962 and read about the "straight line flow" and other "1000" features that will make such valve troubles disappear from your plant.

Maximum Capacity When Needed Most • Accurate Pressure Control Under Toughest Working Conditions • Trouble-Free Service • Smooth Operation • Tight Closure • Accurate Regulation • Speedier Production Results • Elimination of Failures • Constant Delivery Pressure • Cost Saving Operation • No Spoilage • Practically Zero in Maintenance Costs



**CASH STANDARD
CONTROLS...
VALVES**

**A. W. CASH COMPANY
DECATUR, ILLINOIS**

When inquiring specify CP 155 — see handy form pages 2-3

New Literature

Units Simulate Relative Humidity, Give plus 35° to plus 175° F. Control

Two relative humidity simulation units for industry and research are described and illustrated in a four-page pamphlet for workbook insertion. Complete specifications are included, along with a Fahrenheit table of relative humidity or per cent of saturation, listing difference between readings of wet and dry bulbs in degrees Fahrenheit. This test equipment is designed to more than fulfill present requirements. Model H12-A: for testing and research between ambient humidity and humidities at 175° F.; Model H12-R: meets needs of industries and research laboratories where lower humidities are required. Model H12-R, using mechanical refrigeration to lower the dry bulb and dew point temperatures, controls relative humidity from plus 35° F. to plus 175° F. (dry bulb). Write for bulletin entitled, "Relative Humidity Simulation Units."

BOWSER, Inc., REFRIGERATOR DIVISION, Dept. CP, Terryville, Conn.

When inquiring specify CP 156 — see handy form pages 2-3



Asbestos-Insulated Wires and Cables Resist Heat and Corrosion

An 8-page reference publication describes Okobestos wires and cables which are heat and corrosion-resistant by virtue of their insulation with impregnated felted asbestos. Included are cables for power, apparatus, and multi-conductor control, also switchboard and appliance wires. These are designed to transmit electrical power uninterrupted where high temperatures are encountered in continuous service. Detailed information is given concerning all principal standard Okobestos constructions, also recommended voltages, operating temperatures and work locations. Wide variety of designs, approved by Underwriters' Laboratories. Write for Bulletin OK-2061.

THE OKONITE COMPANY, Dept. CP, Passaic, N. J.

When inquiring specify CP 157 — see handy form pages 2-3



How to Sharpen Twist Drills

Based on a report by field engineers that most users of twist drills do not sharpen them correctly, this manufacturer has published a 24-page, pocket-size manual on the proper sharpening and care of twist drills. Manual contains detailed data on this subject, and gives several pointers on sharpening and web thinning as well as dimensions and angles of proper points for best results in drilling various metals. Write for manual G-1.

REPUBLIC DRILL & TOOL COMPANY, Dept. CP, 322 S. Green St., Chicago 7, Ill.

When inquiring specify CP 158 — see handy form pages 2-3



Catalog is "Dictionary" of Electrodes, Oxy-Acetylene Gas Welding Rods

Manufacturer's complete line of electrodes and oxy-acetylene gas welding rods are fully described, with illustrations of typical applications, in a 64-page catalog. Included are color identifications, specifications conformed to, physical properties, welding procedures, recommended ranges and sizes available in full line of electrodes, such as mild steel, alloy steel, stainless, hard facing, cast iron, etc. Tables on weldability of metals,

OVER 1000 IN SERVICE



High on the list of industrial plants using Neff & Fry super-concrete stave bins, with conveyors to store and discharge bulky materials to point of use, are chemical and food processing plants. They handle coal, coke, kaolin, grain — anything that will flow. Particularly good for storing and chuting coal direct to stokers.

On the market for years and over 1,000 in service. Built in any capacity — anywhere. Trained erection crews. Rigid guarantee. Also monolithic type bins.

THE NEFF & FRY CO.
CAMDEN, OHIO

NEFF & FRY STORAGE BINS

When inquiring specify CP 159 — see handy form pages 2-3

This Pump "Takes It" Where Others Fail

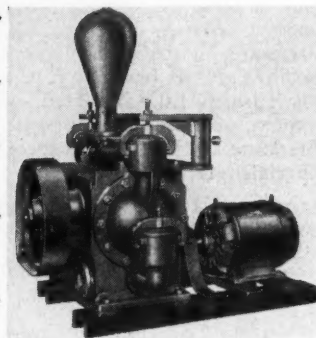
NO PACKINGS

NO LEAKAGE

NO CORROSION

NO CONTAMINATION OF FLUID

NO WEAR OF PUMP MECHANISM



The material pumped — no matter how abrasive, corrosive, viscous or heavy — never gets a chance to injure the moving parts. The liquid ends can be made of any metal or with any covering required to withstand attack. . . This double acting, reciprocating pump delivers 1 to 100 g.p.m. at pressures to 100 p.s.i. It is easy to clean and maintain. It's the pump for tough materials and low cost operation. There's a size and type for your process. — Get Bulletin 121. T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.

Shriver
DIAPHRAGM PUMPS

When inquiring specify CP 160 — see handy form pages 2-3

CHEMICAL PREVIEW

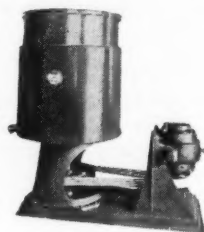
Looking for these Process Improvements?

Wet or Dry Grinding?



Abbé Pebble or Ball Mills grind and mix materials efficiently in batches or continuously, under normal conditions, high or low pressure or vacuum and temperature. Full range of capacities, mill linings, drives and grinding media.

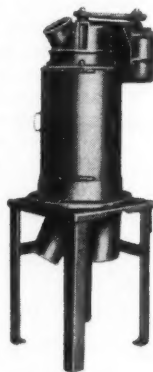
Mixing or Dispersing?



Abbé-Lenart Mixers completely disperse, grind, dissolve, blend and emulsify solids in liquids, reducing processing time as much as 75%. Handle thick or viscous materials; can operate under vacuum or pressure. Capacities 1/2 to 330 gallons.

Sifting?

Abbé-Blutergess Turbine Sifter separates granulations or powders, from 6 to 350 mesh, 2 to 10 times as fast as other screening equipment. No shaking, vibration or contamination; saves space.



Get the Catalog on Abbe' Equipment for Better Processing.

ABBE' ENGINEERING CO.
46 Church St. New York 7, N.Y.

When inquiring specify CP 161
— see handy form pages 2-3

New Literature

appearance inspection of welds, and an electrode consumption chart are included, as well as definitions of welding terms. Welding accessories, AC arc welding machines and similar equipment is described. A complete reference book on welding electrodes and supplies. A copy of "Hollup Welding Electrodes" may be obtained by addressing the manufacturer.

HOLLUP CORPORATION, Dept. CP, 4700 W. 19th St., Chicago 30, Ill.

When inquiring specify CP 162 — see handy form pages 2-3

★

What's Your Mixing Problem?

"Special Mixers" is a four-page, notebook-punched bulletin containing 15 detailed photographs of special mixing units for unusual applications. Whatever the mixing application, however knotty the mixing and blending problem, this manufacturer solicits interest on the basis of past performance, as illustrated by these individually-designed machines. Illustrations include dust-tight mixer for fine materials such as aniline dyes; pug mixer for handling viscous materials; a combined sifting and mixing unit for many foods applications; triple-deck, horizontal-continuous, corrosion-resisting, steam jacketed mixer for raising temperature of high density pulp; also double-ribbon all-welded agitator, ribbon and paddle agitator, and units for textiles, insecticides, starch and other products. Request "Special Mixer" Bulletin SM-346.

SPROUT-WALDRON & COMPANY, Dept. CP, Muncy, Pa.

When inquiring specify CP 163 — see handy form pages 2-3

★

Catalog on Cooling Units Includes Valuable Engineering Data

Attractive, 20-page color catalog offers complete information on unit coolers, ice makers, coil and pan combinations, wall mounted panel units, bare tube, bunker type, display case, gravity and beer cooling coils, similar equipment. Includes sizes, prices, coil selection tables, formulae for determining coil sizes, and valuable engineering data such as tables for determining air change load, heat leak load, factors for use in calculating loads and product storage load data for various commodities usually placed in cold storage. Indexed for ready reference. When writing, specify Catalog CD46.

TENNEY ENGINEERING, Inc., Dept. CP, 26 Avenue B, Newark 5, N. J.

When inquiring specify CP 164 — see handy form pages 2-3

★

Data Sheets Give Factual Combustion Information

A series of 8-1/2 x 11" punched notebook sheets containing "Combustioneering" data prepared especially for combustion and process engineers is available on request. Assembling useful gas combustion and industrial heating data not readily available in a single reference source, this handy service covers mathematical tables, properties of gases, metals and other materials, also gas orifice capacity tables. Additional material will be added from time to time. Write the manufacturer.

THE BRYANT HEATER COMPANY, INDUSTRIAL DIVISION, Dept. CP, 17825 St. Clair Ave., Cleveland 10, O.

When inquiring specify CP 165 — see handy form pages 2-3

AMERCOAT PREVENTS THIS WASTE!



Illustration shows typical application being made to salt water disposal tubing by Green Contracting and Engineering Company, Inc., Wichita, Kansas.

GET POSITIVE PROTECTION WITH AMERCOAT

Ravages of corrosion send millions of dollars worth of pipe and other costly equipment to the junk pile before its time. AMERCOAT produces a long-lasting, non-brittle coating that gives positive corrosion protection. In addition, there is negligible reduction of inside diameters and much lower friction loss.

Since AMERCOAT is unaffected by salt water, crude, acids, alkalies and sulfur compounds, it is being successfully used for the protection of:

Production Tubing • Injection Well Tubing • Disposal Tubing • Chokes • Submerged Pumps and Motors High Pressure Gate Valves • Packers • Sour Crude Tanks Line Pipe

Cost is negligible, compared to failure of vital equipment, loss of materials, wasted time and expensive repairs. Application can be made quickly. For full details, write us about your needs today.

IMMEDIATE DELIVERY



AMERCOAT DIVISION
American Pipe & Construction Company

DEPT. 4H
P. O. Box 3428, Terminal Annex
Los Angeles 54, California

When inquiring specify CP 166 — see handy form pages 2-3

Many Years....

of Research and Development are Behind BARECO Microcrystalline WAXES

The high standard of quality so characteristic of famous Bareco Microcrystalline Waxes is a direct result of long years of painstaking research. The great wealth of "know-how" covering the manufacture of high quality petroleum products, gathered by Bareco chemists, engineers and technicians through the years, is reflected in the laboratory-controlled manufacture of these fine waxes.

Our scientists are daily conducting a never-ending search for methods to make Bareco Waxes even higher in quality and greater in the scope of their applications.

HIGH MELTING POINTS — 170/175° F. — 190/195° F.

HIGH MOISTURE VAPOR RESISTANCE

EXCELLENT ELECTRICAL CHARACTERISTICS

EXCELLENT HEAT-SEALING PROPERTIES

ODORLESS — CHEMICALLY INERT — TASTELESS

BARECO OIL COMPANY

BOX 2009
TULSA, OKLAHOMA



WIDENER BLDG.
PHILADELPHIA 7, PA

Samples Available in

Black, White and Amber

When inquiring specify CP 167 . . . see information request blank, pgs. 2-3

No "Fill or Spill" — No Steam Loss

Steady Continuous Drain of Condensate
Produces More Uniform, Accurate Steam
Pressure and Temperature in the Process

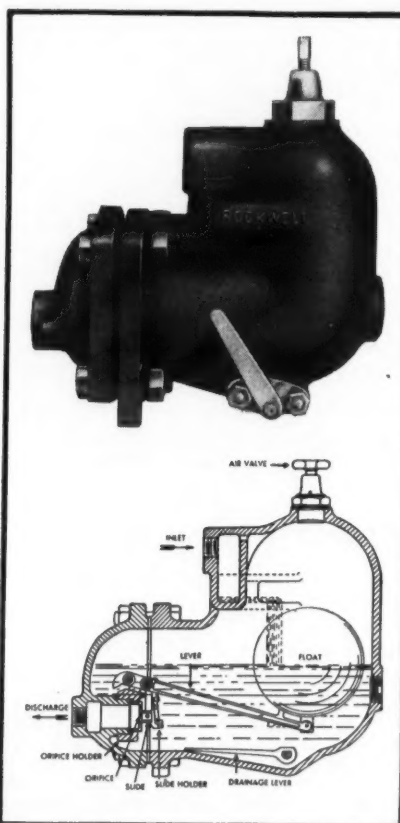
- NO INTERMITTENT DISCHARGE
- POSITIVE SLIDE VALVE SEAL
- NO VALVE SEAT WEAR
- NO PRIMING • NO LEAKAGE
- NO HAMMER OR NOISE

Steam-condensate mixture enters trap above condensate, not below or through it. Slide valve moves over discharge orifice with rising or lowering of float. There can be no short-circuiting of steam in opening or closing of slide valve. Continuous, uniform flow permits use of smaller trap for given needed discharge. Low discharge resistance and pressure drop. Easy to open and clean quickly.

Rockwell Steam Traps are made in 1/2", 3/4" and 1" pipe sizes for pressures of 150 and 300 p.s.i., and temperatures to 750°F. Made with cast steel bodies, stainless steel and bronze mechanisms. Other metals may be used. Write for Catalog.

W. S. ROCKWELL COMPANY • 220 Eliot St., Fairfield, Conn.

ROCKWELL STEAM TRAPS



When inquiring specify CP 168 . . . see information request blank, pgs. 2-3

New Literature

Indexed Reference Covers Valve Flow, Selection, Types of Control Valves

Instrument engineers, process technicians, plant designers and draftsmen will be interested in this 44-page catalog about valve flow characteristics, selection and types of control valves and construction, materials and specifications of Masoneilan control valves. Interesting discussion and comparisons of valve flow coefficients and curves demonstrates theory of control valve operation, this data forming a basis for engineered selection of control valves to fit specialized applications. Mechanical design and operation are described with illustrations. Dimensions, weights, materials of construction and other specifications are included. Handily indexed. Request Catalog No. 301.

MASON-NEILAN REGULATOR CO., Dept. CP, 1203 Adams St., Boston 24, Mass.

When inquiring specify CP 169 — see handy form pages 2-3

★

Dust Collector Uses No Filters

Health of personnel, conservation of equipment and minimum maintenance are three points stressed in favor of an integral dust collector for grinding, buffing and cutting applications, as described in four-page pamphlet. Text is prepared in problem-and-answer style, with charts indicating precipitating efficiencies of various particle sizes and volumetric capacity of the machine's mechanical precipitating tube which discharges dust into a bin or hopper without use of bags, cloth or other filter media. Blueprints, photographs and tables showing capacity and dimension, also necessary capacities and inlet dimension, in relation to wheel sizes, are included. Latter table is broken-down into grinding and buffing requirements. Manufacturer emphasizes absence of filter. This absence, it is claimed, means constant efficiency, less maintenance. Write for Bulletin No. 310.

AEROTEC COMPANY, Dept. CP, White Plains, N. Y.

When inquiring specify CP 170 — see handy form pages 2-3

★

Offers Steel for Special Tool, Die Jobs

Complete particulars on five special steels for specific tool, die and mold applications are included in eight-page manufacturer's bulletin. Descriptive data includes analyses, values, uses, availability. Photomicrographs illustrate each. These products have been in use many years, under both normal and severe operating conditions. Bars of all shapes, molds, dies and forgings are now offered to manufacturers. Forgings can be supplied as forged, or rough or finished machined. A few of the uses listed for these steels include forged plastic mold dies; forged zinc die casting dies; drop hammer forging dies for steel and non-ferrous forgings; high pressure cylinders; gears and pinions; spline shafts; upsetter, gripper and trimmer dies; aluminum and magnesium die casting die blocks, and many other applications. Write for Bulletin No. 946.

KROPP FORGE COMPANY, Dept. CP, 5301 W. Roosevelt Road, Chicago 50, Ill.

When inquiring specify CP 171 — see handy form pages 2-3

★

All-Purpose Flashlight is "Tough Baby"

Step on it. Toss it into your tool box. Use it in rain, mud or salt water. Here is a plastic, 2-cell, prefocused

CHEMICAL PREVIEW

Northern HI-LIFT ELECTRIC HOISTS 168-Hour Week Workers

They stay on the job because they have the strength and construction quality. One piece welded frames—turned and ground shafts—large size roller bearings—machine cut heat treated gearing—splash lubrication. All parts readily accessible for maintenance that usually isn't needed.

Hi-Lift feature makes better use of headroom—capacities 1000 lbs. to 15 tons.



Write for
Literature

NORTHERN ENGINEERING WORKS, 2605 Atwater St., Detroit, Mich.

CRANES Northern HOISTS

When inquiring specify CP 172 — see handy form pages 2-3

Meets Your OPERATING CONDITIONS

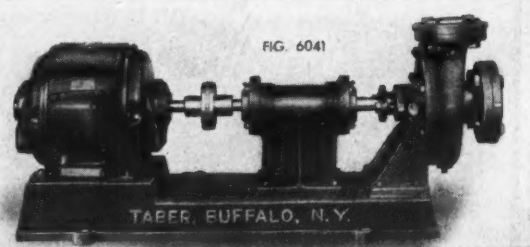
No. 5422-A

This flexible "general-use" Taber Centrifugal Pump serves especially well in the processing industry. The pump is easily adapted to many jobs because several impellers are available for the same size casing or several size casings for the same yoke.

Oversize ball bearings, extra shaft diameter, deeper stuffing box, conservative rating...and final testing to meet your operating conditions...will keep you sold on this Taber "general-use" Pump.

Please write, on your letter-head, for the helpful **TABER BULLETIN CL-339**

TABER PUMP CO., 320 Elm St., Buffalo 3, N.Y.
ESTABLISHED 1859



Taber Pumps for Higher Practical Performance

When inquiring specify CP 173 — see handy form pages 2-3

JANUARY, 1947

New Literature

flashlight which will absorb punishment, according to manufacturer's literature. Being a non-conductor of electricity, it can be used around electric and power lines with safety. Except for metal parts, it resists corrosion of exhausted dry cells and is unaffected by oils, greases, gasoline or water. Will not warp, crack or deteriorate under varied climatic conditions and temperatures from 30° below zero to 150° F. Lens is unbreakable, will not discolor with age. Switch has on, off, signalling positions. All parts replaceable. Designed for standard, 1 1/4" size D dry cells. High grade reflector. Priced reasonably. Write for illustrated literature.

IDEAL INDUSTRIES, Inc., Dept. CP, 5073 Park Ave., Sycamore, Ill.

When inquiring specify CP 174 — see handy form pages 2-3

★

Vertical Centrifugal Pumps Have Sump, Water Supply, Cooling, Mine Uses

Design, construction and application of three types of vertical centrifugal pumps are described in a 6-page manufacturer's bulletin. For general purpose pumping in wide variety of industrial services, as sump and drainage pumping, general water supply, mine station service, cooling tower service. Text covers both submerged and close-coupled types, submerged types being equipped with either top or bottom suction. Each type adapted to all forms of power drive, including direct-connected electric, right angle gear, belt (V or flat) and combinations of these. All three types develop capacities from 200 to 5,000 gals. per min. and will pump against heads from 20 to 100 feet. All three are illustrated in the folder, which includes comprehensive parts diagrams. Copies of Bulletin B-137 may be obtained by writing.

PEERLESS PUMP DIVISION, FOOD MACHINERY CORPORATION, Dept. CP, 301 West Ave. 26, Los Angeles 31, Calif.

When inquiring specify CP 175 — see handy form pages 2-3

★

Electroplating Steel Cleaners Are Fast-Acting

Four-page color leaflet describes complete line of steel cleaners for electroplaters, including solvent emulsion-type precleaners, solvent-alkali combination for precleaning, alkaline soak tank cleaners, alkaline electro cleaners, specialty acid-type descaling products. Describes typical cycle for low carbon steel. These cleaners are said to be quick-acting, effective, economical, readily available, well serviced and well recommended. Supplied by the basic manufacturer, thus assuring minimum prices. Write for bulletin entitled, "Pennsalt Steel Cleaners for Electroplaters."

PENNSYLVANIA SALT MANUFACTURING COMPANY, SPECIAL CHEMICALS DIVISION, Dept. CP, 1000 Widener Bldg., Philadelphia 7, Pa.

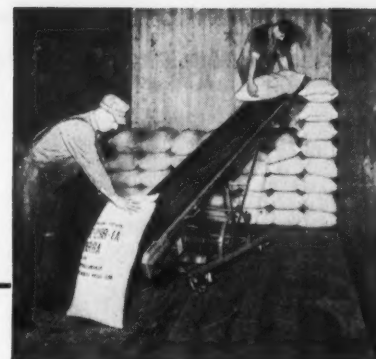
When inquiring specify CP 176 — see handy form pages 2-3

★

Branch Pipe-Outlet Fittings Are Leakproof
"Weldolet" fittings for pipe-strength, permanent, leak-proof branch pipe outlets are factually described in 20-page catalog giving structural, installation, temperature-pressure data, specifications and prices. Also flanges, drain-out fittings. Write for Bulletin WT. 46.

BONNEY FORGE & TOOL WORKS, FORGED FITTINGS DIVISION, Dept. CP, Allentown, Pa.

When inquiring specify CP 177 — see handy form pages 2-3



FASTER HANDLING IN CARS . . TRUCKS . . WAREHOUSES . . with the HANDBELT

There's no problem to fast handling in confined spaces if you use the Handibelt portable conveyor — save lift-ing — carrying; users report 8 to 10 man hours saved and volume of items handled more than doubled. Easily wheeled about by one person. Handles boxes, bags or cartons weighing up to 135 pounds. Can be used inclined, declined or horizontal. Belt is free of side rails and reversible in movement. Operates from any ordinary lighting circuit. Available in two models: No. 11 piles up to 7 ft. 6 inches; No. 16 piles up to 10 ft. 6 inches.

Get complete information — write for Handibelt Bulletin CP-147.

STANDARD CONVEYOR COMPANY

General Offices: North St. Paul 9, Minn.
Sales & Service in principal cities

STANDARD CONVEYORS

When inquiring specify CP 178 — see handy form pages 2-3

BARBER-COLMAN



MICRO SYSTEM FOR PROCESS CONTROL

MICROTHERM

By using a solenoid-loaded contact tongue, with the pull of the solenoid governed by a rheostat on the valve motor shaft, the Microtherm is able to position the Proportioning Valve so as to satisfy exactly any change in demand. Features include simple construction, no relays, and maximum power at all points of valve stroke. "Hunting" is eliminated and the valve is positioned quickly with "micrometer accuracy." Write for Bulletin "CONTROLS FOR INDUSTRY."



PROPORTIONING VALVE

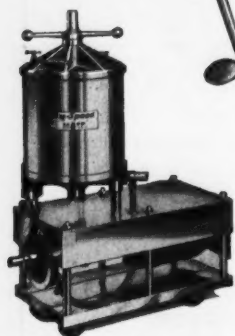
BARBER-COLMAN COMPANY

1203 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP 179 — see handy form pages 2-3

ALSOP "HY-SPEED" MIXERS & FILTERS

For every liquid processing job



"Hy-Speed" Mixers & Agitators

Our complete line of Mixers and Agitators include the portable type for mounting on open tanks and the vertical type for permanent mounting through tops of tanks in a wide variety of propellers and capacities for maximum efficiency.

Fixed side-entering agitators are available in sizes up to 50 H.P. for specific conditions and requirements.

"Sealed-Disc" Filters

Alsop "SEALED-DISC" Filters provide maximum possible flow rate with positive clarity and with a minimum of supervision and operating labor. Sizes with or without pumps range from 1 gal. p.m. to thousands of gallons per hour. Made of Stainless Steel, Monel Metal, Bronze, etc. We invite you to use our service in the solution of your filtration and agitation problems. We shall be pleased to let you have our report and recommendation promptly, there's no obligation.

ALSOP ENGINEERING CORP.

Filters, Filter Sheets, Pumps, Tanks, Mixers, Agitators
201 Alsop Square, Milldale, Conn.

When inquiring specify CP 180 — see handy form pages 2-3

Every Production Executive SHOULD BE FAMILIAR WITH THIS OVEN AND FURNACE CATALOG

Write for this Lanly catalog illustrating an extensive and varied line of general industrial equipment for heat-treating, drying, baking and processing.

In wide scope and high efficiency this equipment emphasizes the ability of the Lanly organization to meet your needs for standard and special equipment to meet the special requirements of general manufacturing.

INDUSTRIAL OVENS and FURNACES

CORE AND
MOLD OVENS
HEAT TREATING
FURNACES
ENAMEL & PAINT
DRYING OVENS
INDUSTRIAL
EQUIPMENT
HEATED BY
GAS, OIL,
ELECTRICITY
OR STEAM

This organization is fitted by training and experience to design, build and erect practically any kind of baking, drying or heat treating oven or furnace. • Let us submit recommendations.

THE LANLY CO.
700 PROSPECT AVE. CLEVELAND

We also do Oven Remodeling and Rebuilding.

When inquiring specify CP 181 — see handy form pages 2-3

New Literature

Visibility Sells Glass Pipe; Live Steam, Cold Water Clean It

"Trouble can't hide behind glass," states a 10-page, illustrated pamphlet describing Pyrex glass pipe for handling food products, wines, hydrochloric acid, chlorinated hydrocarbons, pharmaceuticals and sensitive drugs. Complete specifications are given concerning this practical plant material which is corrosion resistant, non-contaminating, easy to clean and gives long service combined with product visibility. Sizes 1" to 4". Normal operating temperatures, up to 250° F.; high operating temperatures at which protection from thermal shock become necessary, up to 400° F. Physical properties remain unchanged until about 900° F. Flushing Pyrex brand glass No. 774 with live steam immediately followed by cold water is a common cleaning process. For safety, text advises against shocks greater than that occurring when glass at 185° F. is sprayed with ice water. Practically no fluids will harm this material except hydrofluoric acid and hot concentrated caustics. Complete with diagrams and information on fittings, valves, etc. Write for bulletin IA. 3.

CORNING GLASS WORKS, Dept. CP, Corning, N. Y.

When inquiring specify CP 182
— see handy form pages 2-3

Fossilized Material Filters 99.5% its Liquor Weight

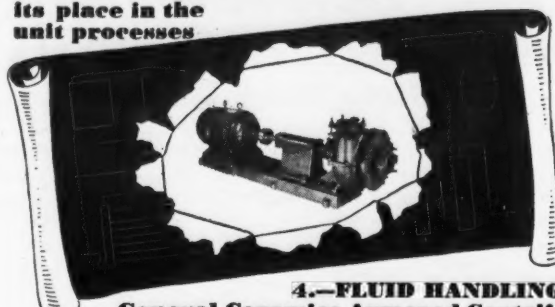
Filteraids, their features and results are subject of a 12-page bulletin containing technical data of interest to all process industries using filtration. A comprehensive presentation, including background data, definitions, methods and examples of how diatomaceous silica, a soft mineral consisting of billions of tiny fossils, is used as filteraids in sugar refining, dry cleaning solvents, plating solutions, beer, oil, fat, metallurgical and water filtration, varnish, lacquer, resin and gum solutions. Features of this material are said to include high degree of clarity, higher flowrates, improved operating flexibility, longer press cycles and lower operating costs. Because of its bulky nature, only about 0.5% of the liquor weight is required. Diagrams and charts include a schematic flow plan and equipment assembly for optimum filtration performance, relative flowrates and capacities of eight of the filteraids manufactured by the company. Request Bulletin B-11.

THE DICALITE COMPANY, Dept. CP, 120 Wall St., New York 5, N. Y.

When inquiring specify CP 183
— see handy form pages 2-3

CHEMICAL STONEWARE

its place in the unit processes



4.—FLUID HANDLING General Ceramics Armored Centrifugal Pumps For Moving Corrosive Liquids

When flowsheets call for the continuous, trouble-free movement of corrosive liquids, it will pay you to investigate the properties of chemical stoneware pumps — and the advantages of stoneware pumps designed by chemical engineers.

Chemical stoneware is an ideal material for pumps handling highly corrosive acids, bleaching agents, pharmaceuticals, food products, and fine chemicals. Chemical stoneware won't contaminate these liquids; it is not only corrosion resistant, but — with all acids except hydrofluoric — actually corrosion proof.

Added to the inherent advantages of the material, in General Ceramics chemical stoneware pumps, are design features insuring minimum maintenance, maximum freedom

from breakage, and long service life. Outstanding among these features:

- Complete stoneware "wet end" — corrosive liquids can't contact metal parts.
- Cast Iron Armor — Maximum mechanical protection.
- Water sealed stuffing box — Lengthens shaft and impeller life.
- Threaded impeller — Easy maintenance — quick replacement.

For a full description of Stoneware Centrifugal Pumps send for Bulletin 211, and call on General Ceramics for the help of its chemical engineers on all phases of corrosive liquid handling. Write Dept. CP.



GENERAL CERAMICS and Stoneware Corp.
Chemical Equipment Division • Kew-Forest, New Jersey

When inquiring specify CP 184 — see handy form pages 2-3

ALL-NEOPRENE Latex GLOVES

For Every Industrial Use

- ★ Impermeable to practically all acids and caustics
- ★ Highly resistant to oils and greases



KEEP
HANDS
Safe

4 POPULAR STYLES

★ No. 5760-5, 18" LONG
EXTRA LONG GAUNTLET
GAUGE .030 TO .040
SIZES 10, 11

★ No. 5737-2, 14" LONG
LONG GAUNTLET
GAUGE .030 TO .040
SIZES 9-10-11-11½-12

★ No. 5705-5, 11" LONG
SHORT GAUNTLET
GAUGE .020 TO .025
SIZES 9-10-11

★ No. 5702-5, 10½" LONG
LIGHT DUTY
GAUGE .010 TO .012
SIZES 7-8-9-10-11

REQUEST SAMPLES
AND PRICES

SEIBERLING LATEX PRODUCTS CO.
AKRON, OHIO

200 - 5th Ave. Bldg., New York Merchandise Mart, Chicago

When inquiring specify CP 185 — see handy form pages 2-3

CHEMICAL PREVIEW

Non-metallic Sheets, Rods, Tubes and Parts Fill Electrical, Mechanical Needs

Non-metallic basic materials for electrical insulating, mechanical, structural, design, performance and special problems are fully specified and described in a 14-page circular. Of particular interest is a three-page comparative chart listing electrical and mechanical properties of Dilecto sheet grades, a laminated thermosetting plastic made by impregnating paper, cotton or asbestos fabric, fiberglass, fiberglass mat, felted asbestos, nylon, or other base materials with synthetic resin, then pressing laminations together under heat and pressure. Standard finished forms are sheets, rods and tubes, all readily fabricated. There is also a grade of Dilecto fabric sheet which may, after pressing, be formed to permanent shape. Classification of Dilecto grades by base material or filler is given, with illustrations of fabricated parts, post formed shapes and sheets, rods and tubes thus manufactured. Five other non-metallic basic materials are similarly treated: Diamond, a light, tough, vulcanized fibre which is readily cut, formed, machined and punched; Vulcoid, an Underwriter approved electrical insulating material intermediate between vulcanized fibre and laminated phenolic plastics; Celoron, a fabric-base, molded phenolic plastic which molds to unusually close dimensions and requires a minimum of machining; Micabond, a bonded mica product in forms of sheets, tubes, tapes and parts; and Dilectene, a pure synthetic resin product, in general adaptable to uses now filled by hard rubber, polystyrene, phenolic laminates, mica-resin or mica with inorganic binder combinations, and certain ceramics. Not adversely affected by ultra-violet light and weather conditions. Fabrication of these materials is also explained with reference to shearing, sawing, bending, forming, punching, drilling, threading and tapping, machining and turning. Write for Bulletin GF-7.

CONTINENTAL-DIAMOND FIBRE COMPANY, Dept. CP, Newark 7, Del.

When inquiring specify CP 186 — see handy form pages 2-3

Pamphlet Explains Basic Types of Ion-exchanging Water Softeners

Ion-exchanging water softeners of both pressure and gravity types for industrial, institutional and municipal uses are described and illustrated in a 16-page reference pamphlet. These units feature automatic equipment to control backwashing, brining and rinsing processes. Contents of pamphlet cover troubles caused by hard water, and economies effected by curing them; manufacturer's complete line of ion-exchanging materials, including Glauconite, or Greensand, precipitated and fused synthetic groups, clay and organic or carbonaceous groups, and a discussion of the De-Acidite demineralizing process for producing, by chemical means, the equivalent of distilled water; also three basic types of company's ion-exchange equipment, including downflow, upflow and gravity Zeolite water softeners. A two-page illustration shows a typical installation with sections cut away, revealing construction details, with appropriate labels. Additional data covers multiport and automatic valve controls, arrangements of Zeo-Karb water softeners, with diagrams, and a section devoted to manufacturer's analytical and research laboratories. Additional literature on this subject is also listed. Write for Bulletin No. 2386.

THE PERMUTIT COMPANY, Dept. CP, 330 W. 42nd St., New York 18, N. Y.

When inquiring specify CP 187 — see handy form pages 2-3

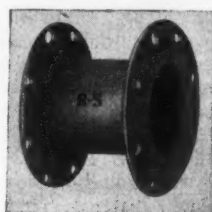
JANUARY, 1947

Advertisement

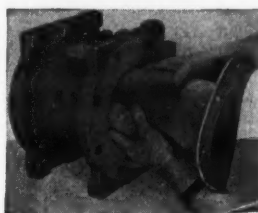


ISSUED PERIODICALLY BY R-S PRODUCTS CORPORATION, PHILADELPHIA 44, PA., FOR THOSE CONCERNED WITH FLOW CONTROL AND SHUT-OFF

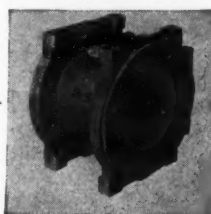
The Iron Hand in the Velvet Glove



Patented renewable
replaceable rubber liner



Installing liner in valve body



Rubber liner in position

Old-timers who think of a butterfly valve as a "slap-happy damper," or as a valve that "always leaks" even when presumably tight-closed, are looking pop-eyed at the performance of the new R-S rubber-sleeved Butterfly Valve.

This is the modern equivalent of the iron hand in the velvet glove, with the trifling difference that it's a steel hand in a rubber glove.

The rubber spool (patented) is renewable and replaceable. Months of experimentation were given to developing a rubber of precisely the right characteristics of flexibility and toughness within the temperature range of -20° to plus 200°F . The spool, which fits somewhat loosely within the valve body, acts as a seat and seal for the wedge-type closing action of the butterfly vane. As the vane approaches the closed position, the rubber bunches up around the periphery of the vane, including the critical points in the area of the shaft-bosses, and forms a perfect seal.

The new valve has been subjected to rigorous tests proving its ruggedness and efficiency. One of the most satisfactory tests, because not carried out under laboratory conditions, was engineered by a manufacturer of powdered glue. He set the valve up in a line so it could be fully opened by a cam, then slammed shut by a 50-pound weight. This test was repeated 9,000 times. At the end of the test, the rubber-sealed valve was still giving perfect closure. The new R-S rubber-sealed valve is available in sizes to handle 15 to 125 p.s.i. using 125-pound standard American flanges.

One of its great advantages is the ease of replacement, though the evidence of many tests indicates this will seldom be necessary. The method is shown in pictures at left. The flanges of the spool line up with the metal flange bolt-holes and eliminate the need for the usual flange-gaskets, a worth-while economy.

R-S Fights Inflation

The opportunity is present for many manufacturers to make the most of freedom from OPA ceilings on machinery. Many are using elevator clauses ruthlessly so that the buyer cannot even guess approximately the spread between ordering price and delivery price.

R-S Products' cost system is such that their Production Department can tell what it costs to make a given type and size of R-S Butterfly Valve today as compared with what it cost last Tuesday. Thus they are in a position to hold increases to a minimum as well as keep clear of runaway guesswork pricing.

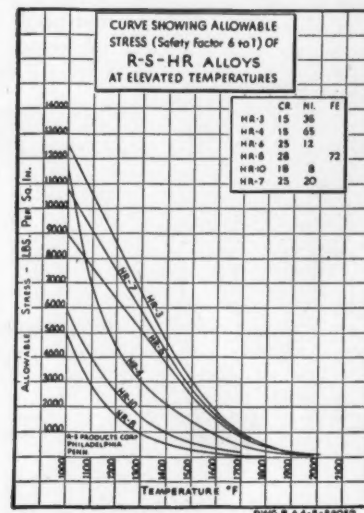
Kone Takes Over Washington

It is amazing how things are changing in Washington these days! First the Republicans—well, you know about that! Now Kone Engineering Company of 11 West 25th Street, Baltimore, is taking over the Washington D. C.

Versatile Butterfly Valves

The high efficiency and low cost of Butterfly Valves is widely known but not generally recognized, paradoxical as this may sound. Actually, the fields in which Butterfly Valves are operating with characteristic efficiency are as wide as Industry itself. Users include the biggest names in air-conditioning and refrigeration, aviation, chemical processing, coke, foundries, heat-treating, heat exchange systems, production and refining of oil, paper and pulp mills, rubber production, sewage and water works, shipyards, soap plants, solvent recovery systems, steel mills, sugar refineries, textile and dye-works, and power plants generally.

territory for R-S Valves. Kone has been Baltimore distributor for R-S Valves for some time past and continues to handle the Baltimore territory. He will handle Washington from the present Baltimore office.



"Hard to Get"

Information on the behavior of metals at temperatures above 1200°F is not easily come by. The curves herewith have been worked out by R-S Engineers to show the stress resistance of various heat resistant metals at elevated temperatures.

H-R metals are stainless steels and stainless iron developed through study of valve requirements. Three of these metals show allowable stress of 2000 p.s.i. between 1500° and 1600°F , and 1000 p.s.i. at nearly 1700°F .

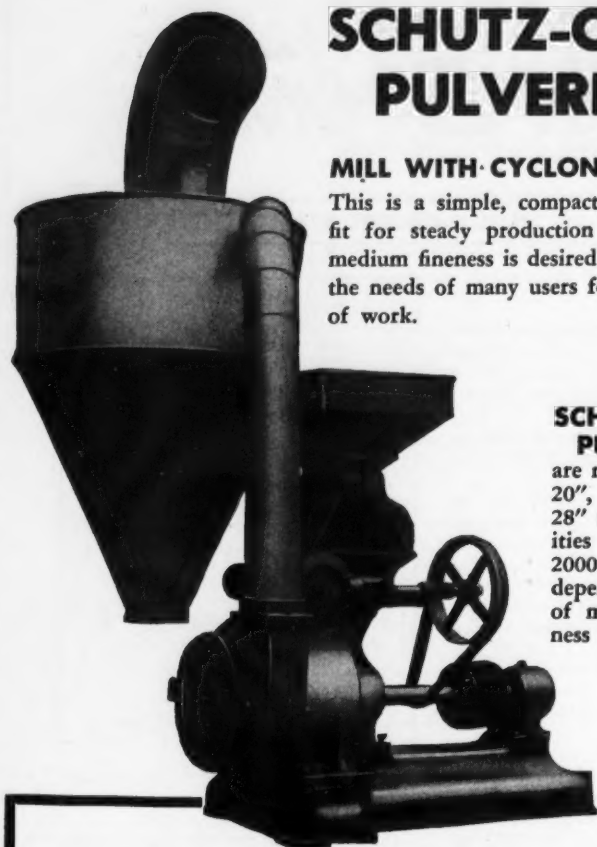
The relative paucity of information on stress resistance at high temperatures gives the chart unusual value to engineers. A copy may be had by inquiry of D. W. Hopkins, Vice President, Valve Division, R-S Products Corporation.

Complete R-S Valve Installation Data

Engineers like the complete dimensional data supplied for R-S Butterfly Valves. Dimensions are tabulated by standard sizes under stock types and identified by letters corresponding to detailed drawings which accompany the tables. Six full pages of R-S Products' Catalog No. 14-B (copy on request to R-S Products Corporation, Wayne Junction, Philadelphia 44, Pa.) are devoted to this basic installation data.



When inquiring specify CP 188 . . . see information request blank, pgs. 2-3



SCHUTZ-O'NEILL PULVERIZERS

MILL WITH CYCLONE COLLECTOR

This is a simple, compact, economical outfit for steady production where coarse or medium fineness is desired. It amply serves the needs of many users for a great variety of work.

SCHUTZ-O'NEILL PULVERIZERS

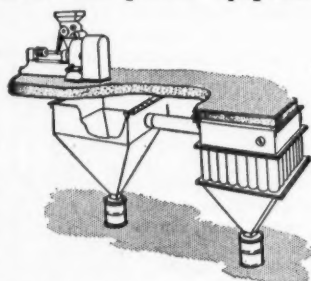
are made in 12", 16", 20", 22", 24", and 28" sizes, with capacities ranging up to 2000 lbs. per hour, depending upon kind of material and fineness desired.

For Fast, Fine Grinding of DRY CHEMICALS and Allied Products

For general use in pulverizing a great variety of dry chemicals, drugs, colors, gums, glues, or any dry, non-gritty stock, the Schutz-O'Neill Pulverizers are unexcelled. The principle of centrifugal air force impact is fast, produces a uniform product, and will maintain relatively high outputs for superfine grinding up to 400 mesh. For products with high moisture or oil content, Schutz-O'Neill also has efficient and proven equipment.

MILL PLANS FOR ANY SET-UP

Schutz-O'Neill has a great variety of Mill Plans for different purposes. If you will write us your requirements, products to be pulverized, output desired, and send a sample, Schutz-O'Neill engineers will recommend the correct size and type of mill and the most efficient Mill Plan for your use. This in no way obligates you. Literature on request.



MILL PLAN 32. Mill discharges directly to bin carried below base of mill and then to Tubular Dust Collector on the same level.

Some territories are open for Sales Engineers on Schutz-O'Neill products. Write stating qualifications.

ESTABLISHED 1893
SCHUTZ-O'NEILL CO. DIVISION OF FARTEN MACHINERY CO.
PULVERIZERS • BREAKER MILLS • ROLLER MILLS • BURR MILLS • HAMMER MILLS
303 SIXTH AVENUE SOUTH • MINNEAPOLIS 15, MINNESOTA

When inquiring specify CP 189 — see handy form pages 2-3

New Literature

Non-friction Hammer Mills Grind, Shred, Defiberize

Hammer mills which pulverize materials of all kinds in mid-air by shattering blows from a battery of revolving, hardened steel hammers are described in a 12-page, illustrated booklet. Practical applications include foods, chemicals, abrasives, ceramics, feed and flour, fertilizer, foundry facing, gypsum, insulation, metal shops, paper, plastics, power plants, rayon, cellophane, refractories, rendering, rock products, roofing material, scrap, tannery items, wood and wood flour. Suspension method of grinding eliminates friction because no heat producing methods such as rubbing and pressure are involved. Hence, less power is needed, wear and breakdown are negligible, and material retains original chemical state. Material discharged by gravity or conveyed pneumatically to collection system. 16 standard models, 1/2 to 200 hp. Also special machines for specific uses. See booklet, "The Buffalo Hammer Mill." Engineering data on request.

BUFFALO HAMMER MILL CORPORATION,
Dept. CP, 27 Washington St., Buffalo 3, N. Y.

When inquiring specify CP 190
— see handy form pages 2-3

★

Spray Booth Masking Sprays on, Peels off like Tape

Filmite, a new fluid compound which is sprayed or brushed on walls of dry paint spray booths and which peels off like scotch tape with its adhering overspray from the walls, is described in a four-page, illustrated pamphlet. Material is non-inflammable, non-irritant, non-corrosive, non-toxic, forms tough skin over a non-hardening base. Water-soluble, comes ready to use. Micro-diagrams show how "skin" effect halts paint penetration, prevents adhesion. Catches and holds the overspray. Reported to save up to 90% in booth cleaning labor. Eliminates use of paper, grease or soap as an adhesive, with their consequent fire hazards. Illustrations show method of application and removal. Filmite also protects side walls of water curtain booths. Pamphlet also describes Klarifant, a compound to simplify water curtain operation by preventing scale formation and controlling paint residues, and Dyna-Sprex, a heavy duty detergent for complete water booth cleaning. Write for literature.

THE DU BOIS COMPANY, Dept. CP, Cincinnati 3, O.

When inquiring specify CP 191
— see handy form pages 2-3

"NATIONAL" CHEMICAL DRYERS

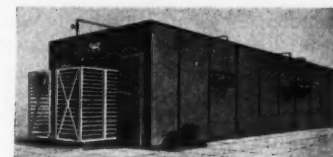
Fast . . . Accurate . . . Economical



Truck Type Tray Dryer
For batch drying of various chemicals in moderate quantities. May accommodate one or more trucks having any desired number of trays.



Single Conveyor Dryer
For handling larger quantities of chemicals and other materials, including high abrasives. Continuous hopper feed; automatic material leveler; pressure extraction and heating for pre-drying.

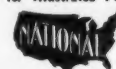


Semi-Continuous Tunnel Type Truck Dryer

For quantity production of filter pressed chemicals and minerals in batch or sludge form.

Send for Illustrated Folders

Chemical Dryers of
All Types and Sizes



Special Drying and
Heating Equipment



"NATIONAL" Test Dryer
Convection type. For experimental and small production drying.

THE NATIONAL DRYING MACHINERY CO.
2709 N. HANCOCK STREET, PHILADELPHIA 33, PA.

When inquiring specify CP 192 — see handy form pages 2-3

"Roller-type" JAR MILLS



"U. S." roller-type Jar Mills are tops for low cost grinding or mixing. No clamping into frames. Set the jar on the rubber rollers—and let it roll. Standard sizes will accommodate one, two, three or four, 1, 1/2, or 2 gallon size jars. Revolving speed about 50 RPM. Illustration shows Fig. 296-C, Cabinet style Jar Mill. Write for catalog 256.

U. S. STONWARE

Process Equipment Division
AKRON 9, OHIO

When inquiring specify CP 193 — see handy form pages 2-3

CHEMICAL PREVIEW

Release Technical Data on 3 Chemicals

Technical data sheets No. 350, 361 and 751 describe respectively benzotrifluoride, benzamide and liquid lauryl pyridinium chloride. These cover physical and chemical data including formulae, molecular weights, flash points, vapor pressures, surface tensions, etc., also descriptions and suggested applications, other information. Benzotrifluoride is described as a water white liquid with aromatic odor; completely miscible with most common solvents; excellent thermal stability; side group not attacked at 350° C. in presence of iron or copper. Suggested uses include dyestuffs, dielectrics, medicinals, chemical synthesis, insecticides. Benzamide described as white, free-flowing crystalline powder of mild aromatic odor; decomposes above 200° C.; crystal structure, monoclinic. Suggested uses: in organic synthesis, including plastics, pharmaceuticals, dyestuffs. Compatible with limited number of resins including cellulose acetate, nitrocellulose. Liquid LPC described as 30% water solution of lauryl pyridinium chloride; purified, non-staining, odorless, almost colorless; clear, remains stable against aging, moderately high temperatures, and over wide pH range. Text includes much additional description. Suggested uses: in preparation of detergent germicides; detergent fungicides; as an impregnant in manufacture of cosmetic cotton, bandages, gauze, paper goods and other bactericidal and bacteriostatic specialties; as a cationic vehicle, penetrant or bonding agent in application of moth-proofing or mildew-proofing compounds to textiles and in application of various wool conditioning agents; as a lubricant, softening or wetting agent in textile processing; as a germicidal detergent in preparations for removing duplicating inks, oils, greases from the hands; as a fungitox adjuvant for foliage sprays, and for many other potential purposes, theoretical or proved. These data sheets, specified by numerals as listed above, are available on request.

HOOKER ELECTROCHEMICAL COMPANY, Dept. CP, Niagara Falls, N. Y.

When inquiring specify CP 194 — see handy form pages 2-3

★

Eastman Catalog Lists Nearly 3,000 US-made Chemicals

Nearly 3,000 different American-made chemicals, together with their melting and boiling point ranges in degrees centigrade and, in most cases, their structural formulas and molecular weights, are listed in the 173-page, 35th edition of the catalog and price list of Eastman Organic Chemicals. Where structure is unknown, or cannot be accurately indicated by available means, the empirical formula is used. For compounds existing in two forms, or subject to internal rearrangement, formulas are shown for the more predominant form. Chemicals are classified in three grades: Eastman, Practical and Technical. Convenient listings cover alkaloids, amino acids, carcinogenic hydrocarbons, hydrogen ion indicators, liquids for refractive index determinations, special reagents, special "spot test" reagents, sugars, vitamins and related products. A supplementary list includes chemicals placed in stock too late to be classified. Most of the important biological dyes and stains, many of them certified by the Commission on Biological Stains, are offered. These are identified as to color index number and whether or not they are supplied in manufacturer's original containers. To obtain this literature, write.

EASTMAN KODAK COMPANY, ORGANIC CHEMICAL SALES DIVISION, Dept. CP, Rochester 4, N. Y.

When inquiring specify CP 195 — see handy form pages 2-3

Another

EDGE MOOR ACHIEVEMENT

IN PROCESS EQUIPMENT FABRICATION

This carload of ten 24" O.D. steel receivers for a large eastern chemical process plant is *another* EDGE MOOR achievement in process equipment fabrication . . . a direct result of EDGE MOOR experience, facilities and proficiency.

EDGE MOOR is equipped to furnish *any type* of heavy-wall welded fabrication to your individual designs, specifications or requirements . . . in metal thicknesses up to 2½". Materials include:

CARBON STEELS	NICKEL STEELS	HIGH CHROME	NI-CHROME
STAINLESS STEELS	MONEL	18-8 ALLOYS	EVERDUR
CLAD STEELS	HERCULOY	INCONEL	NICKEL

EDGE MOOR Shops have complete facilities for stress-relieving, annealing and X-ray . . . and are approved by leading insurance companies for fusion welding to meet all codes and tests. We shall be pleased to place our experience and facilities at your disposal when you are considering additional plant equipment.

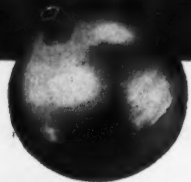
EDGE MOOR IRON WORKS, INC. • Main Office and Works: Edge Moor, Delaware • Branch Offices and Agents: 95 River Street, Hoboken, New Jersey • 7 Water Street, Boston, Massachusetts • P. O. Box 9, Station E, Atlanta, Georgia • 2459 Woodward Avenue, Detroit, Michigan • One N. LaSalle Street, Chicago, Illinois • 2295 University Avenue, Saint Paul, Minnesota • 623 Aztec Building, San Antonio 5, Texas. 141 Second St., San Francisco, Calif.



edge moor fabricators of process equipment

When inquiring specify CP 196 . . . see information request blank, pgs. 2-3

STAINLESS STEEL FLOATS for severe service



The strength and corrosion resistance of stainless steel makes floats of this material particularly adapted to many services where ordinary floats would be short-lived. Stainless steel floats may be safely used at operating temperatures up to 800 deg. F. For more severe service, at temperatures up to 1800 deg. F., floats of stabilized 18-8 stainless steel, with Chicago Float Works stabilized weld, make the most of the exceptional corrosion resistance of this material. Spherical (ball) shape only, with standard connection fitting, or without connection. Standard sizes, 3 to 10 inch diameter.

Get complete data on stainless steel floats, as well as all other types, in our general catalog, sent upon request.

CHICAGO FLOAT WORKS, INC.

"Nothing but Floats" since 1915

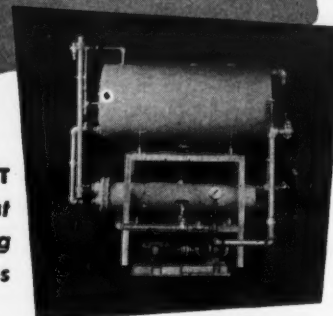
2330 SOUTH WESTERN AVENUE, CHICAGO 8, ILLINOIS
When inquiring specify CP 191 — see handy form pages 2-3

New Literature

Duplex Tubing Simultaneously Stops Attack by Two Corrosives

Double corrosion, attacking simultaneously inside and outside in the form of two entirely different corrosive media, is a troublesome problem for users of metal tubing. Many such users have solved this problem with Duplex tubing, whose characteristics, uses and specifications are fully described in a 12-page, illustrated technical bulletin. This tubing is used, among other things, to prevent contamination of taste and color in beverages, cosmetics, drugs, dyes, soaps, food products, formaldehyde, fruit juices, gums, oils, resins, varnishes, and raw materials used in making plastics. Following copper-base alloys can be combined with other metals or alloys, either inside or out, to form Duplex tubing: Admiralty, aluminum brass, copper (all grades), Cupro Nickel (80—20 and 70—30), Duralumin (aluminum bronze), Muntz Metal, Naval Brass, Red Brass (85—15), Yellow Brass (70—30). Other metals include aluminum, monel, nickel, steel (low carbon), stainless steel. For example, made of copper to the water-side and low-carbon steel to the ammonia-side, Duplex tubing is used in coolers for ammonia and similar nitrogen compounds. Bulletin contains several drawings which illustrate methods of installing Duplex tubing for ordinary conditions or for preventing galvanic corrosion between components of the tubing. Duplex tubing can be expanded or rolled into the tube sheet in same way as ordinary condenser or heat exchanger tubing, can be bent with same tools and

Save WASTED B.T.U.'s!



Get EXTRA HEAT
From Your Present
Boiler by Stopping
Flash Steam Losses

SCHAUB ^{Heat} Reclaim SYSTEM

It's easy to stretch the steaming capacity of your boiler by re-using "flash" steam that ordinarily escapes from the receiver vent. With a Schaub patented heat exchanger—this lost heat is transferred to the feed water on its way to the boiler. Feed water temperatures are built up to 260°—or higher—with the reclaimed steam.

Automatic water level and make-up are provided for in the Schaub System. Write today for details.

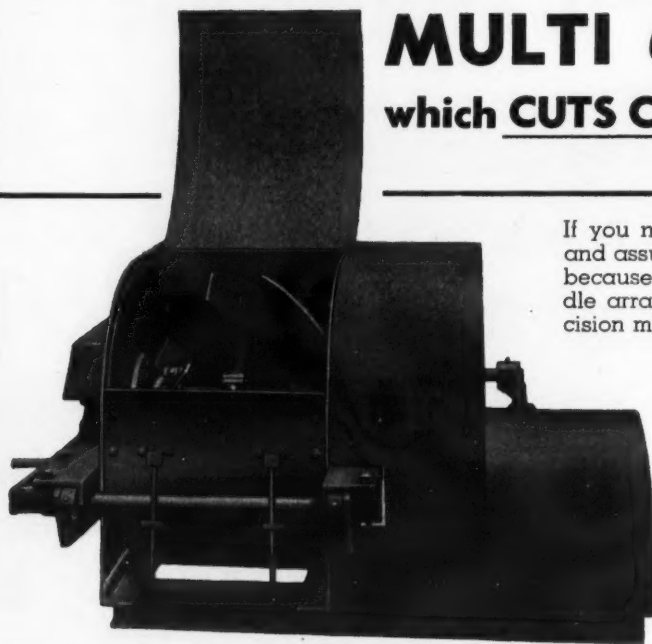
SCHAUB SYSTEMS—the Key to Boiler Room Efficiency

FRED H. SCHAUB ENGINEERING CO., INC.

2113 SOUTH MARSHALL BOULEVARD, CHICAGO 23, ILL.

When inquiring specify CP 199 — see handy form pages 2-3

It's the Paddle Arrangement in MULTI Chemical MIXERS which CUTS COSTS and SAVES TIME



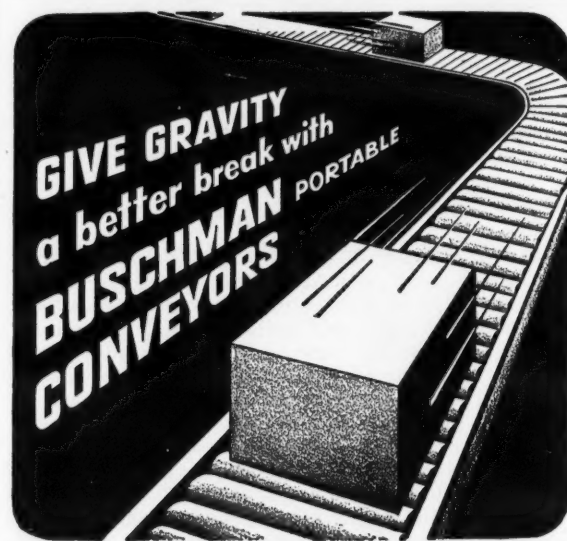
If you need a mixer that will save cost, save time and assure a perfect blend, you need a Multi-Mixer, because the Multi-Mixer has a special type of paddle arrangement which not only guarantees a precision mix but is designed to **prevent** the drag of the material against the liners, thus **reducing friction** which is so costly in power waste and repair bills. If you have a mixing problem, the chances are Multi-Mixer will solve it. Write for new descriptive literature.

- Sizes from 3 to 60 cubic feet
- Side, end or bottom discharge
- For all kinds of chemical mixtures
- 5 styles of drives
- Replaceable liners and paddles

THE MULTIPLEX CONCRETE MACHINERY CO.
ELMORE, OHIO

Specializing in Satisfactory Service Since 1906 on Complete Concrete Plant Equipment

When inquiring specify CP 198 . . . see information request blank, pgs. 2-3



GIVE GRAVITY
a better break with
BUSCHMAN PORTABLE
CONVEYORS

Buschman Portable Conveyors are designed to do a better job than the ordinary conveyor. Both Roller and Wheel types have full ball bearings mounted in sturdy steel frames. Convenient straight and curved sections are combined with Buschman's exclusive "Quick-Eez" couplings. Quick adjustable stands, mobile units and many other features give ease of handling to many conveyor applications. Write for full details on these smoother-running, trouble-free conveyors.

REPRESENTATIVES IN PRINCIPAL CITIES

THE E. W. BUSCHMAN CO.
SPRING GROVE and CLIFTON AVENUE, CINCINNATI 32, OHIO

When inquiring specify CP 200 — see handy form pages 2-3

CHEMICAL PREVIEW

New Literature

equipment as are used for single wall tubing. These, and other interesting facts are fully covered in Bulletin No. 746. Make written request on company letterhead.

BRIDGEPORT BRASS COMPANY, Dept. CP, Bridgeport 2, Conn.

When inquiring specify CP 201 — see handy form pages 2-3

★

Electronic Air Filtration 90% Effective

Many chemicals and foods in process can be easily ruined by introduction of air-borne impurities. This is also true of synthetics, textiles, film and pharmaceuticals. Transparent plastics; new combinations of petroleum, alcohol and coal tar derivatives; candy, sliced bacon, margarine, gelatine, cheeses, yeast and beer are highly susceptible to contaminants borne by air. Penicillin, in the pharmaceutical field, is typical of new drugs which must be manufactured under immaculate conditions. For these, and other purposes, electronic filtration arrests foreign particles so minute as to be visible only through an electronic microscope. A 20-page, illustrated booklet is devoted to this interesting subject. Text covers theory and practice of electronics in air filtration; research and development in this field, with emphasis on manufacturer's complete line of electronic air filtration equipment (four types of electronic filters); electronic precipitators, and what electronic "super clean" air means to industry, with practical applications given. Illustrations include enlarged photographs of filters in outdoor air, and the same air after passing through standard viscous type filters and an electronic precipitator, where 90% of dust and smoke were removed. Isometric drawing of an air conditioning system, showing location of electronic air filter, is included. Equipment using either alternately charged plates or electrostatically charged Airmat paper fully explained. Write for booklet, "The Magic of Electronics in Air Filtration."

AMERICAN AIR FILTER COMPANY, Inc., Dept. CP, First and Central Ave., Louisville 8, Ky.

When inquiring specify CP 202 — see handy form pages 2-3

★

In Service 7 Years, Rotary Drills 308,800 Feet for \$8 Repair Bill

Streamlined rotary tables for oilfield drilling are featured in a 12-page bulletin which includes complete specifications on 17-1/4" short and standard, and 23" and 27-1/2" standard rotaries. A large, two-page cross-sectional view points out 14 construction details, with working parts clearly indicated. Explanatory text and illustrations also portray an internal combustion engine-driven hydro-rotary unit powered with 150-200 hp. gas, gasoline or diesel engine for added drilling hp. and to save wear on expensive draw-works transmissions. A steam engine-driven unit is also shown. Roller Kelly Drive, an improved type of drive bushing which permits the Kelly to pass freely through the rotary table with minimum friction, is discussed. Some features of these rotary tables are: field-proved, 100% oil-bathed, quiet and smooth-running, streamlined for utility and safety, precision-built, easily maintained. A 17-1/4" rotary table of the type described, in service seven years, has drilled 95 wells to a total depth of 308,800 feet, at a cost of \$8 for repairs. Write for Bulletin R-45.

INTERNATIONAL DERRICK & EQUIPMENT CO., Dept. CP, Beaumont, Tex.

When inquiring specify CP 203 — see handy form pages 2-3

JANUARY, 1947

Anti-Corrosive STEEL STAINLESS Fastenings

These Nuts Are DIFFERENT!

They're Stainless Steel Nuts, fresh from our production line — Stainless Steel Nuts, corrosion-resistant, longer-lasting, ideal for any use where corrosion is present.

What's more, they're only one of the many items we make and stock — Stainless Steel Fastenings of all kinds, in all sizes and analyses.

If you're looking for quick delivery on standard items, our stock room can fill your order at once. If you need something special, we have the raw materials to fill your order promptly — in any analysis of Stainless, to meet any specifications.

Nuts, bolts, wood and machine screws, rivets, cotter pins, nails, welded and seamless pipe, pipe fittings — over 700 items, over 1,000 sizes — all STAINLESS STEEL!



Write for our catalog and stocklist. Address Anti-Corrosive Metal Products Co., Inc., 53 River Road, Castleton-on-Hudson, N. Y.

Anti-Corrosive Metal Products Co. Inc.

CASTLETON-ON-HUDSON NEW YORK

When inquiring specify CP 204 . . . see information request blank, pgs. 2-3

ASCO

MANY TYPES OF AUTOMATIC CONTROL VALVES

WHAT'S YOUR FLOW CONTROL PROBLEM

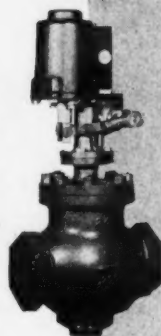
WOULD it be, for example, like automatically shutting off the flow of nitrogen at 100° F. under 20 pounds inlet pressure with vacuum on the outlet . . . or nitrous oxide at -60° F. and under high pressure . . . or carbon dioxide at -70° F. and 275 pounds pressure? We encountered these three jobs not long ago in process plants and furnished the proper types of ASCO Solenoid Operated Shut-off Valves.

The solenoid valve is ideal for most shut-off and automatic control applications on a variety of materials such as gases, brine, light oils, many chemicals, water and steam. We can supply either "packless" or "packed" valves in a wide range of sizes, the latter being more suitable for the higher pressure and temperature. We can furnish them of special corrosion-resisting materials and in "explosion-proof" designs, if required.

Write us in detail about your shut-off problems. Our engineers, with nearly forty years' experience in the design, manufacture and application of solenoid valves, will be glad to make recommendations.

In addition to Shut-off Valves, we manufacture other standard electrically operated valves such as Safety Trip and Shut-off and Pilot Operated 2, 3 and 4 Way Valves. We also are in position to furnish valves of special designs. Bulletin No. 200 gives further details.

We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays.



Bulletin 8250—packed valve, mainly for steam; available normally closed or normally open; also with manual reset.



Bulletin 8265—Two-Way Shut-off Valve for pressures up to 250 pounds and for opening and closing at frequencies up to 400 times per minute.



Automatic Switch Co.

47 EAST 11th STREET NEW YORK 3, N. Y.

When inquiring specify CP 205 — see handy form pages 2-3

Page 64

New Literature

Instruments Detect Costly Flow Losses

Venturi meters, tubes, insert nozzles and a variety of instruments for metering and controlling flow, liquid level, temperature, pressure and weight are illustrated and described in a four-page folder which is punched and sized for standard 8-1/2 x 11" notebook insertion. Instruments covered by this bulletin include meters for detecting avoidable losses in steam, air or gas lines, propeller-type flow meters of streamline Venturi design; a "superaccurate" Venturi meter combining a university calibrated venturi tube and specially calibrated type M totalizer-indicator-recorder for measuring central station boiler feed water or flow through petroleum pipe lines, etc.; manometers; midget differential meters; a Chrono-flo Conveyor Scale for continuous weighing, controlling and proportioning of dry material flow; orifice plates and flanges; telemeters for centralized, accurate records of flow, liquid level, position, pressure, temperature or weight; flow watches and similar apparatus. Write for Bulletin 359.

BUILDERS-PROVIDENCE, Inc., Dept. CP, Providence 1, R. I.

When inquiring specify CP 206 — see handy form pages 2-3

★

Catalog Describes Gas, Oil, Electric Revolving Retort Furnaces

Gas, oil and electric revolving retort furnaces for annealing, bright annealing, hardening and drawing ferrous and non-ferrous metal products are the subject of a four-page, illustrated, ring-binder punched folder. Includes table specifications covering electric and fuel-fired types, describes operation, advantages and applications. Features continuous, automatic charging, heating and discharging, with control of time and rate of uniform heating. Photographs show 13 views of various installations which include oil-fired furnace for hardening bobbin rings, gas-fired furnace for hardening springs at 200 lbs. per hr., electric furnace for hardening steel rollers, with explanatory text. Unit may be combined with preliminary cleaning and subsequent quenching, pickling and washing equipment, thus providing entirely mechanical, automatic, multiple process operation at minimum cost. Write for Bulletin No. 424.

W. S. ROCKWELL COMPANY, Dept. CP, 200 Eliot St., Fairfield, Conn.

When inquiring specify CP 207 — see handy form pages 2-3

★

Study Cotton Shrinkage Control

Seven-page textile finishing bulletin describes a dye staining technique for studying shrinkage control imparted to cotton by melamine-resins. Text includes a brief introduction and covers experimental method, results of application studies on cotton, reproducibility of the dye test and a discussion of results. Five charts, five tables. References are listed. Nearly all application studies were made on 80 x 80 cotton cloth which was desized, washed and framed to size prior to application work. A few preliminary results were obtained on rayon. Text relates that some melamine-formaldehyde resins have numerous applications in textile fields, that methylated methylol melamines have a desirable action in shrinkage control of wool and cellulosic materials, and that, concerning application of these resins to cotton in the mill, experiments were conducted to determine a rapid method of evaluating the extent to which these

ADVANTAGES OF

TAG

CELECTRAY INDICATING CONTROLLERS for throttling electric heat



- Closer Control
- No "dead zone"
- Less overshooting
- Longer life of heating elements
- Adjustment for process lag
- Controlled return after upsets

The TAG Celectray Controller uses a photo-electric tube, a mirror galvanometer, and a beam of light for control of electric furnaces. This method of photo-electric balancing means higher accuracy and closer control, because there is practically no "dead zone." It's economical, too, because its use requires no rheostats, induction voltage regulators or other expensive equipment.

Find out how TAG Celectray advantages can add up to both efficiency and economy for you. Write for literature.

C. J. TAGLIABUE DIVISION

PORTABLE PRODUCTS CORPORATION
341 PARK AVE. BROOKLYN 5, N. Y.

When inquiring specify CP 208 — see handy form pages 2-3

AS QUICK AS A FLASH YOU CAN KNOW THE EXACT MEASUREMENT OF YOUR VALUABLE STORED LIQUIDS With LIQUIDOMETER



WRITE FOR COMPLETE DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE **LIQUIDOMETER** CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N. Y.

When inquiring specify CP 209 — see handy form pages 2-3

CHEMICAL PREVIEW

"You CAN
take it with you..."

if it's a

BROOKFIELD SYNCHRO-LECTRIC VISCOSIMETER

Making Viscosity tests at point of process is a snap with the Brookfield Viscosimeter. All you need is a convenient electrical outlet and you're set to take readings of high accuracy in 30 seconds.

Readings given directly in centipoises over wide ranges. Temperatures up to 600° F. No adjustments necessary. Requires no technical skill.

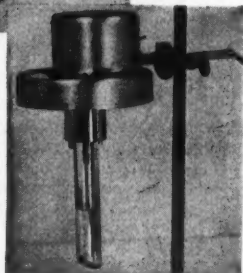


PORTABLE!
USE IN PLANT OR LAB



Same instrument can be used in both plant and lab. Use as a portable instrument shown at left. Operates on 60 cycle 110 volt current.

When instrument is needed for stationary use only it may be mounted on a rod clamp as shown at right. Handles are interchangeable.



BROOKFIELD
ENGINEERING LABORATORIES
BOX 603-P, SHARON, MASS.

When inquiring specify CP 210 — see hand

New Literature

resins control shrinkage of cotton, "in order to supplement the more reliable but more lengthy measurements of shrinkage." Methods developed as a result of these experiments, which are fully described in the bulletin, are said to be satisfactory. Possible, practical mill applications are also discussed. It is stated that the dye staining technique can be used on colored fabrics, and that it should be of interest in testing cure box conditions. For complete details, write for Textile Finishing Bulletin 114.

AMERICAN CYANAMID COMPANY, TEXTILE RESIN DEPARTMENT, Dept. CP, Bound Brook, N. J.

When inquiring specify CP 211 — see handy form pages 2-3

Centrifugals, Effective as Boosters or Exhausters, Move Gases and Grains

An eight-page, letter-size folder emphasizes the wide range of applications where this manufacturer's centrifugals, equally effective as boosters or exhausters, have been used. They move gases in chemical manufacturing. Food, grains and other materials are conveyed by air which they provide. Air for foundry cupolas and industrial heating processes is thus supplied. Water and sewage disposal plants, both large and small, use them. Their high efficiency in producing vacuums is utilized by paper mills and similar installations. Currents of warm air, thus delivered, dry textiles and yarns. Blast furnaces, coke ovens and oil refineries are representative customers, and an instance is cited where gas at 1000° F. was successfully circulated at 100 lbs. pressure. One page is devoted to rotary positive units, also manufactured. Centrifugals are illustrated in both single and multi-stage types, with capacities to 100,000 CFM, and at pressures from the lowest to highest practicable. Shop tests, where every impeller is given a thorough over-speed test assuring safety and durability when operating at 3,600 to 10,000 RPM or higher, according to custom-built demands, are shown. A wide selection of prime movers is available, according to this literature. Write for Bulletin 120-B-13.

ROOTS-CONNERSVILLE BLOWER CORPORATION, Dept. CP, Connersville, Ind.

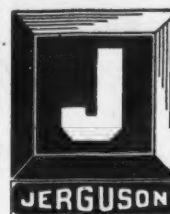
When inquiring specify CP 212 — see handy form pages 212

Chart Tabulates Data on Carbon, Alloy and Steels for Pipe and Fittings

Engineers, draftsmen, purchasing agents and all concerned with buying, design, layout and erection of piping systems will welcome this handy Chart of Pipe and Fitting Materials. Prepared by manufacturer's engineering service department, it concerns carbon, intermediate alloy, stainless and special analysis steels, and covers ASTM specifications, chemistry, service limitations and welding procedure. Size 9" x 14", chart folds to 8-1/2" x 11", fitting easily into a standard letter-size filing cabinet. Also designed for ring-binders, having convenient ring holes and a 7-1/2" gate fold. Page one lists range of manufacturer's sizes on welding fittings and forged steel flanges, in tabular form, with accompanying illustrations. A copy of this chart may be obtained by writing.

TUBE TURNS, Inc., Dept. CP, Louisville 1, Ky.

When inquiring specify CP 213 — see handy form pages 2-3



Gages THAT READ WELL
and
STAND UP WELL

AN ordinary glass tubing can give you some idea of the level of liquid in a tank, but glass tubing is not too capable of withstanding shocks and blows, high temperatures and high pressures.

We have a line of gages that can do these two necessary things — **read well and stand up well.**

Many refineries and chemical plants use the Jerguson Reflex Gage because of the distinctive contrast between liquid and empty space. Liquid shows black; space shows white. The gage can be read at some distance. Others who must be able to note the color or condition of the liquid use the Jerguson Transparent Gage which is of the "see-through" type. Both types are rugged with the glass elements well protected by the recessed chamber. Both are available in corrosion-resisting construction.

Jerguson specializes in liquid level gages. It's where you can come for your requirements with complete assurance.

JERGUSON GAGE & VALVE CO.

90 Fellsway

Somerville 45, Mass.

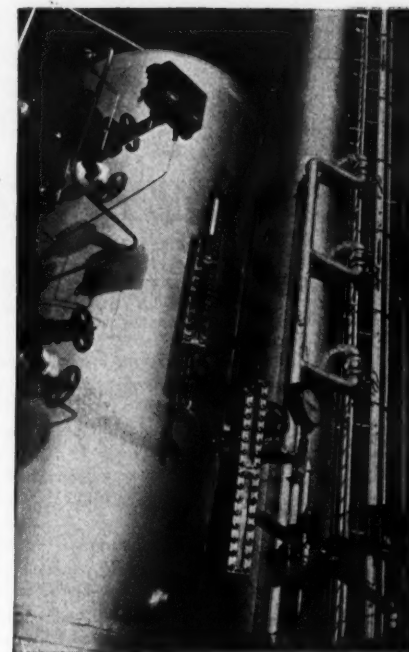
List of Representatives

APPLETON, WISCONSIN
ATLANTA 3, GEORGIA
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CINCINNATI, OHIO
CLEVELAND 14, OHIO
DENVER, COLORADO
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HOUSTON 1, TEXAS
KANSAS CITY, MISSOURI

LOS ANGELES 6, CALIFORNIA
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MEMPHIS 3, TENNESSEE
MINNEAPOLIS, MINNESOTA
NEW YORK 17, NEW YORK
PHILADELPHIA, PENNSYLVANIA
PITTSBURGH, PENNSYLVANIA
PORTLAND, MAINE
PORTLAND 8, OREGON

SAN FRANCISCO 4, CALIFORNIA
SEATTLE 9, WASHINGTON
ST. LOUIS 11, MISSOURI
TULSA 12, OKLAHOMA
MEXICO, D. F.
ALL OF CANADA
Peacock Bros., Ltd.,
Montreal 13

When inquiring specify CP 214 — see handy form pages 2-3



Equipment for Production

Metal Cleaning and Rust Proofing Tank is Motorized, Automatic

Dipping speed adjusts, averages 10 per minute; will stop after each operation, if desired

USES — Automatic motorized washing and dipping tank, designed especially for automatic washing and cleaning of metal parts. Also ideal for dipping metal parts or other objects in wax or rust preventives. Used for cold dipping, hot cleaning or dipping, by electricity, gas or steam.

FEATURES — Continuous agitation: all parts can be cleaned automatically, eliminating hazardous hand dipping. Using this machine, one operator can do the work of three to five men. Insulation against heat loss effects large savings in operating costs. Rack can be adjusted to stop after each dipping operation by the simple insertion of a bolt. This feature is especially effective for wax dipping and rust proofing operations.

DESCRIPTION — Cooper's Automatic Motorized Tank. Sturdily built of heavy steel throughout. On heated models, rock wool is thickly packed between inner and outer tank shells, keeping outside of tank cool and preventing heat loss. Tank contains special, heavy steel rack. Top of rack frame is equipped with gears, arms, fittings, geared motor and cut-off switch, constructed so as to permit inside rack to raise and lower continuously until stopped by pressing button on switch. Rack raises and lowers approximately 10 times per minute, and traveling speed can be increased or reduced, as desired. Available for immediate delivery in sizes ranging from 60 to 300 gallon capacity. For additional information, address the manufacturer.

D. C. COOPER COMPANY, Dept. CP, 1467 S. Michigan Ave., Chicago 5, Ill.

When inquiring specify CP 216 — see handy form pages 2-3

★

Scale Model Photographs Aid Selection of Lab Units

3-Dimensional pictures tell story better than blueprints: buyers can visualize

USES — Unitized laboratory furniture, visually presented for consideration by use of scale models, or miniatures, three-dimensional photographs of which are mailed to prospective customers.

FEATURES — Actual installations are more easily visualized than by means of blue prints; hence, purchaser can often foresee costly alterations and additions which otherwise might not suggest themselves until after actual installation had been completed. This is particularly true in the case of large installations, where substitution of a sink

unit for a wall unit or storage case might not seem advisable, or be apparent, by examination of blue prints. Partly because of this, scale photographs are only prepared



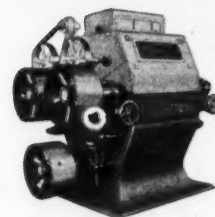
Photographing scale model of unitized laboratory furniture layout

in instances where fairly large installations are contemplated. As for the actual laboratory units, they are entirely prefabricated, carried in stock for shipment from several convenient locations. Fourteen types and sizes

WITH
SPROUT-WALDRON'S
IMPROVED "46"

ROLLER MILL

OUTSTANDING EFFICIENCY
LOW OPERATING COST
LARGE-VOLUME PRODUCTION



Like all the other machines in the complete SPROUT-WALDRON line, S-W's IMPROVED Roller Mill is expertly designed and engineered. Famous for its outstanding efficiency on large-volume production, this machine is exceptionally economical and easy to operate. Call your Sprout-Waldron representative or write for complete details on the Sprout-Waldron line . . . the machinery you need for truly efficient production.

SPROUT-WALDRON & COMPANY

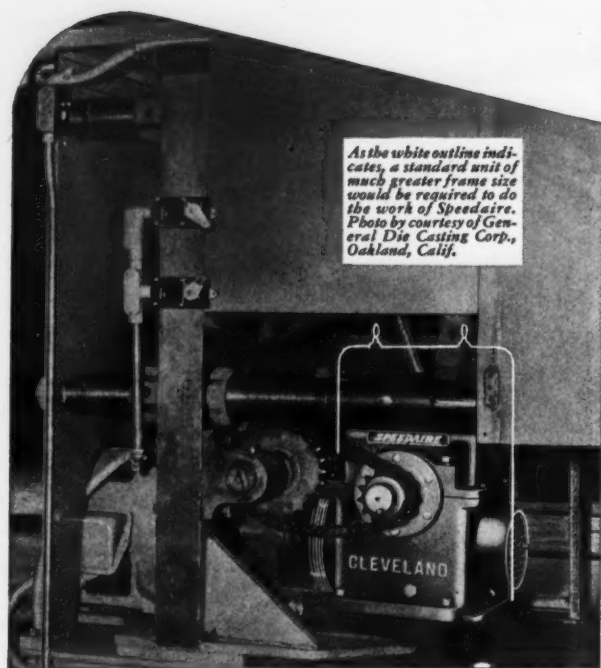
Manufacturing Engineers

MUNCY

PENNSYLVANIA

When inquiring specify CP 217 — see handy form pages 2-3

CHEMICAL PREVIEW



As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire. Photo by courtesy of General Die Casting Corp., Oakland, Calif.

SPEEDAIRE permits compact design

THE increased capacity of Speedaire and the minimum space required for its installation enabled the builder of this Aluminum Die Casting Machine to design a more compact and efficient machine. In addition, Speedaire cost 16% less than a conventional worm-gear unit, saving \$39 on each drive.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to double the horsepower of standard worm units of equal frame size, at usual motor speeds. It can be installed economically on many applications where other types have been used heretofore—giving you the advantages of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

For full description, send for Catalog 300. The Cleveland Worm & Gear Company, 3257 East 80th St., Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.



When inquiring specify CP 215 — see handy form pages 2-3

Production

offer a wide range of selection for ordering by mail, ranging from a two-foot bench to a large, complex assembly, all in matching, harmonizing design for efficiency and simplified operation. Modern, economical, easily installed.

DESCRIPTION — All units are heavy gauge steel, protected by "Bonderizing" and a three-coat resistant, baked-on plastic finish in gray enamel with black tops of Kemrock, a selected, natural stone accurately cut and ground. After drying and tempering, these slabs are pressure impregnated throughout with black, polymerizing resin which cures by baking. Samples of Kemrock, immersed in common acids and alkalis for days, are said to show no corrosive effect. Steel in units is cold-rolled, structurally strong, with all corners, joints, etc., both interlocked and heavily spot welded for complete rigidity. Floor and rear panels of each unit are removable. All base units have recessed lower front edge to allow toe space for standing worker. Write for additional details.

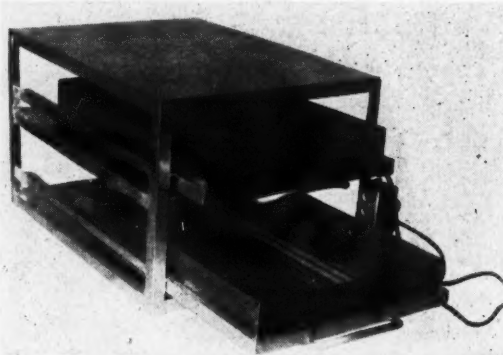
FISHER SCIENTIFIC COMPANY, Dept. CP, 711-723 Forbes St., Pittsburgh, Pa.

When inquiring specify CP 218 — see handy form pages 2-3

Uses For Infra-red Preheater Affect Plastic, Paint, Popcorn

Infra-Lectric plate, fused in glass, forms bed of two-way drawer

USES — Infra-red heating preheater already has proven applicable to a wide variety of uses such as preheating plastic preforms, dehydrating industrial materials, drying



Infra-red preheater

paints and metal finishes and heating popcorn in consumer vending machines. For use where applications require thermostat-controlled low temperatures, with minimum plus or minus variance up to 380°.

FEATURES — Unit is open on all sides, permitting released moisture to be dissipated and not confined to processing materials. Drawers are separately removable from two sides.

DESCRIPTION — Calesco Preheater. An Infra-Lectric Plate, consisting of aluminum-carbon alloy elements fused into tempered glass forms the bed of the drawer, allowing all-over even plate temperatures. Materials may be placed above or below plate, or rest directly on surface.

DELT-CALESCO COMPANY, Dept. CP, Far Hills, N. J.

When inquiring specify CP 219 — see handy form pages 2-3

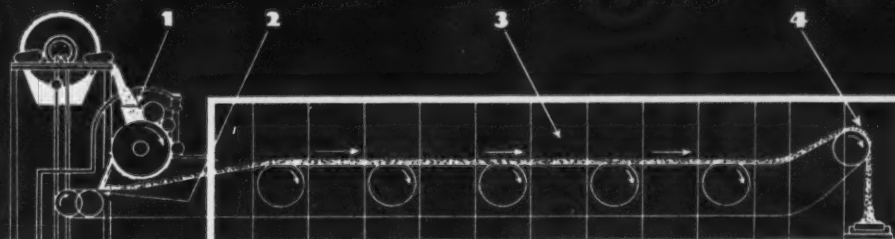
JANUARY, 1947

WHITE LEAD PROPERLY, THOROUGHLY DRIED

AT RATE OF 1500 POUNDS PER HOUR IN

PROCTOR

CONTINUOUS CONVEYOR SYSTEM



1. White lead is delivered from continuous filter to hopper of fin drum feed of dryer with moisture content of approximately 69.3% (B.D.W.B.*).

2. Partially dried on fin drum, white lead is preformed into small sticks of uniform size and thickness and discharged to moving conveyor of the dryer.

3. Loaded on moving conveyor, the white lead is carried through the dryer. Temperatures are 250° F. at beginning of cycle and graded down to 190° F. at end of cycle.

4. White lead, uniformly dried, is discharged from dryer with moisture content of .075% (B.D.W.B.) at the rate of 1500 lbs. (C.D.W.†) per hour.

*Bone Dry Weight Basis.
†Commercial Dry Weight.

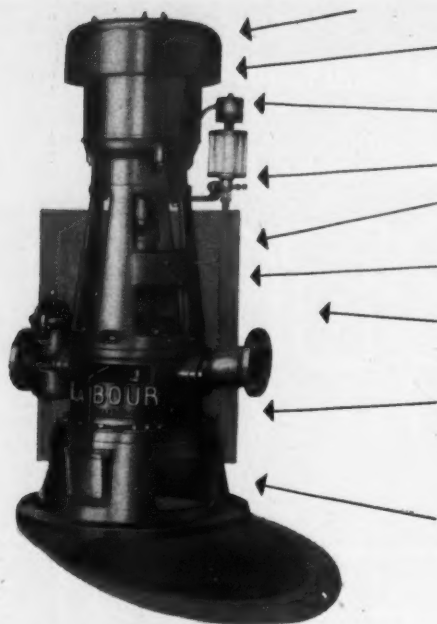
Drying white lead to a uniform moisture content, on a large scale production basis, is made possible by the Proctor Continuous Conveyor System combined with a Fin Drum Feed. In the particular installation illustrated, the white lead is first mechanically dewatered by means of a continuous rotary filter, from which it is discharged into the hopper of the Proctor Fin Drum Feed. In this hopper the paste-like substance is pressed into the grooved surface of the internally-heated revolving fin drum, by pasting rolls. On this drum, the material is dried sufficiently to be discharged to the conveyor of the dryer, in the form of small sticks of uniform thickness. It is then possible to circulate heated air through the bed of material on

the conveyor, thus promoting rapid, uniform drying. By forming the material into small, uniform shapes, more rapid diffusion is possible, which accounts for the rapid drying and uniformity. This particular application for one type of Proctor Pre-forming feed, combined with a continuous conveyor dryer, illustrates just one installation.

These systems are literally tailor-made to meet individual plant or product requirements. If the drying of wet-solids is a part of your operation, it will pay you to have Proctor engineers consider your drying problem. Their recommendations will be made only on the basis of facts gathered in tests involving your product—and will assure you the right drying system. Write today.

PROCTOR & SCHWARTZ INC. PHILADELPHIA 20, PA.

When inquiring specify CP 220 . . . see information request blank, pgs. 2-3



REQUEST PERFORMANCE

So closely does the LaBour Type G meet the pumping requirements of the chemical industry—particularly for handling corrosive or dangerous liquids—that you might almost say the Type G was planned by the men in that field.

Everyone responsible for pump performance in chemical plants knows the trouble and expense involved in maintaining a mechanical seal. That's why we say LaBour designed the Type G to your specifications. There is no packing, no rubbing seal in the Type G—hence no production time lost in inspecting, tightening and repacking glands—and no possible loss of valuable chemicals through leaking around the shaft.

Only LaBour gives you a packingless, self-priming centrifugal pump. This unique feature of the Type G, added to the reliability and simplicity for which all LaBour pumps have long been famous, makes it a fact that when you need a LaBour nothing else will do.

THE LABOUR COMPANY, INC.
1571 Sterling Avenue, Elkhart, Indiana, U.S.A.

IF YOU NEED A
LABOUR
NOTHING ELSE WILL DO



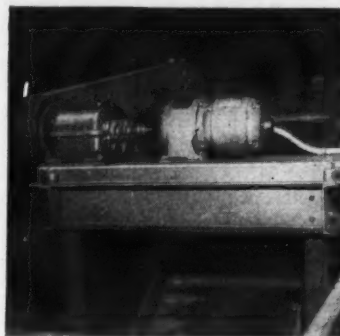
CENTRIFUGAL PUMPS

When inquiring specify CP 221 — see handy form pages 2-3

Production

Electrofluid Drive Assures Smooth, Cushioned Starting

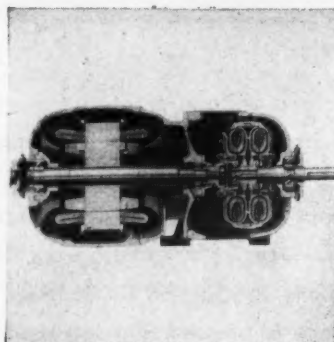
Starts equipment at no-load; available in sizes up to 20 hp.



Electrofluid Drive operates a foundry conveyor

ing presses, paper mill machinery, textile machines, ball mills, rubber mills, and for many other purposes.

FEATURES — Output shaft of this "packaged" power

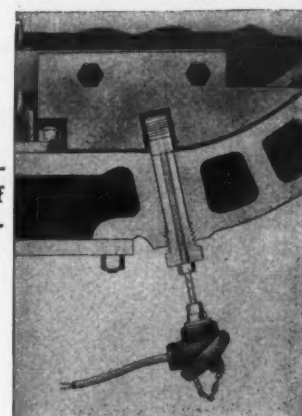


unit may be direct-connected to driven machine or speed reducer unit. May also be connected to driven machine through medium of chain, gear or belt drives. Should driven machine stall, Electrofluid Drive pulls to maximum torque capacity of motor, thus drawing sufficient current to cause thermal overload protective device to function within seconds. Fluid traction coupling absorbs energy of motor rotor, protects driven machine from shock of rotor's inertia under sudden stoppage. Unit delivers maximum torque of which motor is capable, overcoming a momentary demand which might otherwise shear a pin or stop power source completely. This cushioning effect protects both motor and driven equipment. Shock loads from driven side are smoothed out, cannot reach motor. Because shock never strikes solid resistance the gears, chains, belts or speed reducers in driven mechanism are protected against severe strains, impact. Torsional vibration effectively cushioned by fluid coupling, assuring smooth power flow.

DESCRIPTION — Available in capacities up to 20 hp, unit consists of a general-purpose AC induction motor flange-mounted on sturdy housing containing a hydraulic, or "fluid" coupling. This has primary and secondary elements similar, respectively, to a centrifugal pump impeller and a waterwheel or runner output element. Coupling contains light mineral oil of steam turbine quality. Motor-driven impeller causes oil to flow through runner buckets back to impeller, thus rotating runner through oil medium. Motor torque is

USES — Electrofluid Drive, a compact, motorized hydraulic combination whose ability to start at no-load regardless of characteristics or inertia of driven machinery or connected load make it ideal for use on drawbenches, heavily flywheeled machinery, conveyors, compressors, cooling tower fans, print-

DOPP KETTLES



Positive temperature control of your product during processing

Dopp Kettles are available with patented thermocouples which indicate accurate temperatures of the material, regardless of the temperature of the kettle wall. This insures positive control of all production cycles. It is particularly valuable in the treatment of heat-sensitive products with critical operating temperatures.

BUFLOVAK EQUIPMENT

Division of Blaw-Knox Co.
1645 Fillmore Ave., Buffalo 11, N.Y.

When inquiring specify CP 222 — see handy form pages 2-3

Think in Terms of Fraction-ounces When You Package . . .

Chemical Products in small packages are a fraction-ounce weighing operation when uniformity and profits are sought. Over-weight packages have a habit of mounting into substantial losses where there is volume. Especially is this true in the small containers. It pays to use good packaging scales to catch these elusive ounces fitting away daily without controls. **EXACT WEIGHT Scales** stop these losses . . . apply the controls necessary for profitable operation . . . make packaging easier, more profitable . . . certainly more profitable. Write for full details today covering your operation.



INDUSTRIAL PRECISION

Exact Weight Scales

THE EXACT WEIGHT SCALE COMPANY

31 W. FIFTH AVE.,
Dept. E, 783 YONGE ST.

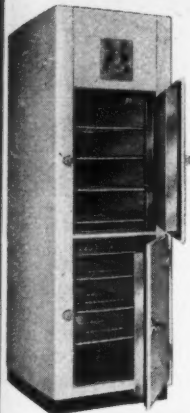
COLUMBUS 8, OHIO
Toronto 5, Canada

When inquiring specify CP 223 — see handy form pages 2-3

Available NOW... "Anets" LABORATORY CABINETS in stainless steel!

Accelerated peacetime production insures prompt delivery on "Anets" war-tested Laboratory Cabinets. Fully automatic, all-electric models with precision control of temperature and humidity right at your finger tips.

The LSC-16 is a new improved model with inner shell, ducts, air conditioner, door linings, shelf hangers, heating units, etc., of stainless steel. New, compact instrument panel with new super-sensitive, stainless steel dial type thermometers.



New molded rubber gaskets around doors provide a perfect seal. Many other improvements give you precision control and long life performance.

Write for bulletin No. 170.

- ★ Testing electrical and electronic units and assemblies.
- ★ Weathering, moisture absorption control, package testing, etc.
- ★ Incubation, germination and bacterial culture development.
- ★ Processing plastics, fabrics, metals and wood.
- ★ Fermentation, proofing and processing of food products.

ANETSBERGER BROTHERS, INC.
3322 Elston Avenue, Chicago 18, Illinois

When inquiring specify CP 224 — see handy form pages 2-3

No matter what
your recovery problem

...DUST ...FUME
...FLY ASH ...MIST
...FOG

the COTTRELL
Electrical Precipitator
provides highest efficiency at
lowest overall cost!

99+% RECOVERY: Even on ultra-fines Cottrell efficiencies exceed 99+%,—closely approaching theoretically perfect performance!

LOWEST MAINTENANCE: The Cottrell has no filters, no screens, no parts that require frequent repair, replacement or service.

ANY CAPACITY: Whether gas flow is a few c.f.m.—or millions—the Cottrell will handle any recovery job, large or small!

LOWEST DRAFT LOSSES: Cottrell draft losses are lower than any other recovery equipment—only a few tenths inch of water!

LONG LIFE: There are no moving parts in the collecting structure of a Cottrell, therefore no wear. Installations made over 30 years ago are still operating without substantial change.

WHETHER your recovery problem involves purification of gases, nuisance abatement, or collection of values now being lost in discharge gases, find out the many important advantages COTTRELL Precipitators offer. Let our trained engineers study your requirements.

Send for this
COTTRELL
booklet!



WESTERN
Precipitation
CORPORATION

ENGINEERS, MECHANICAL & MANUFACTURERS OF EQUIPMENT FOR
COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUORS
Main Office: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LA SALLE ST. BLDG., 1 N. LA SALLE ST.,
CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring specify CP 225 — see handy form pages 2-3

JANUARY, 1947

Production

transmitted from impeller to runner by fluid in coupling. No mechanical connection exists between the two elements of fluid coupling which, inserted between motor and its load, acts as automatic clutch, the fluid serving as a "cushion" between prime mover and driven machine. Electrofluid Drive starts at no-load because at zero speed the torque transmitting capacity of fluid coupling is zero. Motor accelerates quickly, developing torque in fluid coupling in ratio of square of the speed until sufficient torque up to maximum running torque of motor is developed to start the driven load. Additional information may be obtained by writing for Book No. 2085 containing photographs, charts, hp and torque ratings, weights and dimensions necessary to determine how this drive will fit a specific layout.

LINK-BELT COMPANY, Dept CP, 307 N. Michigan Ave., Chicago 1, Ill.

When inquiring specify CP 226 — see handy form pages 2-3

★

Design Recirculating Furnace for Heat Treating Below 1250° F.

Gas-fired unit gives accurate, uniform temperature
control in dense loads



Recirculating air draw furnace

USES — This gas-fired, recirculating type air draw furnace is especially designed for heat treating below 1250° F. Used in aluminum heat treating and malleable iron casting plants, automotive fixture concerns; many other metallurgical users.

FEATURES — High velocity circulation of heat gases in this unit gives accurate and uniform temperature control in very dense loads. No air blast required for combustion: fired with atmospheric burner. Thermal head in furnace; small temperature gradient throughout. High burner operation with simple control arrangement. High production per unit of basket content. Push button ignition. Fully protected against electric and gas failures by electronic flame-failure unit which, it is claimed, "absolutely prevents" filling the work chamber or recirculating system with unburned gases. Recent improvements include new panel control system which is fully assembled and pretested at factory, delivered for installation as single unit, also improved bearing construction.

DESCRIPTION — Gas-fired, using an atmospheric burner with comparatively rich primary mixture, and enough air as a secondary supply to complete combustion. Recirculating blower gives continuous, rapid circulation of hot gases through load. Very rapid circulation developed by blowers in the various units eliminates excessive temperature drop in the gases as they pass through the work. For more complete specifications, operating data and sizes, write for Bulletin D-9.

ECLIPSE FUEL ENGINEERING CO., Dept. CP, Rockford, Ill.

When inquiring specify CP 227 — see handy form pages 2-3

TAKE FUMES AWAY THIS Easy WAY



PROPELLAIR Pull-Push FANS KEEP PLANTS COMFORTABLE, CLEAN

Double-action Propellair fans make short work of fumes, moisture, dust, and heat to keep air clean.

Propellair blades have thickness. Thus, they create a powerful pull, in addition to their push. Scientific design makes whole blade work—not just tip—for uniform air flow over whole fan area. The airfoil-principle curved entrance ring prevents capacity-cutting "tip recirculation." Result: high volume, high velocity, truly economical efficiency.

A TWO-WAY INSTALLATION

Above are three ceiling-mounted Propellairs installed at Claridge Food Co., Flushing, N. Y. These fans force 30,000 cu. ft. of air per minute across room for exhausting above roof by the powerful Propellair Verti-Stack, below. Ceiling fans point slightly downward to reach all portions of the room. Compared with the former fans which these units replace, Propellairs "operate better; are much more efficient." There are six Propellairs in service.

YOUR MONEY BUYS AIR MOVEMENT

Simple, compact, easy-to-install Propellair fans give you what you want in industrial ventilation—functional design for maximum air movement. Types and sizes for every need and location. Distributors from coast to coast. Write for complete facts.



VERTI-STACK
for Power Roof
Ventilation



When inquiring specify CP 228 — see handy form pages 2-3



"Here's your Answer

TO UNLIMITED SPEED SELECTION!"



*Conveniently-packaged,
space-saving V*S Drives
are available from 1 to
200 horsepower.*

Reliance V*S is the *All-electric, Adjustable-speed Drive*, which operates from *A-c. Circuits*. The flexibility it brings to machine operations can increase your production and cut your costs—as it has already done in thousands of installations. Here is the simplest, most efficient means of securing an infinite range of stepless speed changes from your plant's A-c. circuit for all processing jobs. Bulletin 311 will bring you more of the important facts about the V*S Drive. Write for it today!

RELIANCE ELECTRIC & ENGINEERING CO.
1067 Ivanhoe Road • Cleveland 10, Ohio

Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary • Grand Rapids • Greenville
Houston • Kansas City • Knoxville • Los Angeles • Milwaukee • Minneapolis • New Orleans • New York • Pittsburgh
Portland, Ore. • Rockford • St. Louis • San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D. C.
Sao Paulo, Brazil

RELIANCE^{AC} DC MOTORS

"Motor-Drive is More Than Power"

When inquiring specify CP 229 . . . see information request blank, pgs. 2-3

Production

Lubricated Mechanical Seal Defies Volatile Fluids, High Pressures

Installation is practical on present mixers, centrifugal pumps, autoclaves

USES — Mechanically lubricated rotary seal for severe conditions at pressures up to 500 lbs. Also for sealing processing equipment in the presence of gritty, corrosive or highly volatile conditions. Using a single seal combined with a mechanical positive force-feed lubricator is reported to give highly satisfactory sealing for hydrocarbons, boiler feed water, crude oil, petroleum products, similar fluids and liquids. Can be installed on present equipment such as mixers, centrifugal pumps, autoclaves. Readily installed in standard stuffing boxes of equipment having rotary shafts, provided shaft has no end play. Seal assembly is recommended outside stuffing box for corrosive or gritty fluids at low pressures, also vacuum conditions.



Lubricated type mechanical seal

FEATURES — Construction of seal permits use of special metals and alloys to meet specific operating factors such as shaft size, shaft speed, temperature, pressure and characteristics of various fluids. Seal rotates with shaft; hence, shaft or sleeve cannot become scored. In mechanically lubricated type, supply of lubricating oil can be set to amount required. Return circulating pipes are unnecessary; if excess lubricating oil is fed to seal, it will drain off to atmosphere, leaving process fluid uncontaminated. Fully automatic.

DESCRIPTION — Dura Seal. The mechanical rotary seal in combination with mechanical lubricator has two-fold principle: lubricating oil serves partially to balance off the pump or vessel pressure, while positive lubrication is automatically supplied to seal's wearing parts at point of contact, enhancing service and long life. Manufacturer will mail Bulletin No. 413 to all interested parties.

DURAMETALLIC CORPORATION, Dept. CP, 2104 Factory St., Kalamazoo 24F, Mich.

When inquiring specify CP 230 — see handy form pages 2-3

★

Cuts 3-ton Armature Bake Time from 16 Hours to 8 Hours

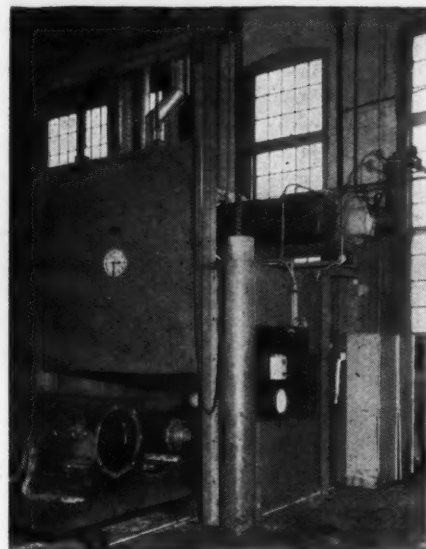
Shop now handles five times as many heavy traffic motors in same space

USES — In the specific case described, gas-fired convection oven was installed about two years ago in the electrical shop of Great Northern Railway, at St. Paul, for baking coils and armatures, motors and other electrical equipment. Such baking is necessary after equipment is cleaned with oakite solution, after vacuum impregnation and after dipping and spraying with varnish.

FEATURES — Advantages claimed by shop foreman include faster baking, lower baking costs, increased ca-

CHEMICAL PREVIEW

capacity, better baking, greater convenience. Baking time for 3-ton armatures was cut in half. Large diesel generators and diesel-electric motors up to three tons are now said to be baked in eight hours instead of 16. User claims new oven does better job on average run of smaller motors in four hours than the old oven did in eight. Two 3-ton diesel electric motors or diesel generator armatures can now be baked at one time. Latter measures 36" diameter, 38" long. Six 1-ton armatures, 18"



Gas-fired convection oven

diameter, 36" long, for the diesel-electric motors are baked in a single load. These are handled with traveling crane and rail-mounted oven dolly. Baking capacity said to be increased until shop now handles five times as many heavy traffic motors in same amount of floor space as previously. Two batches or loads now handled easily in two shifts where only one load was previously possible. Day crew takes out finished batch in morning and reloads; night crew removes batch in afternoon and reloads. Night shift sets oven to shut itself off when baking is finished, letting fans run until morning to cool load. Convection heat and automatic controls said to demand little or no attention from operators, also insure uniform temperatures throughout baking period at all points within oven. Shop engineers, testing the oven at six different places with six thermocouples found heat did not vary more than 4°F. at any point.

DESCRIPTION — Despatch gas-fired convection oven. Size 6' wide, 10' long, 7' high. Heated with 500,000 BTU Despatch air heater externally mounted on top to conserve floor space. Forced exhaust system complies with underwriter's requirements, removes fumes quickly from oven after they are released from varnish. Although the Despatch Coil and Armature oven is built to permit processing at temperatures up to 500°F., baking Great Northern electrical equipment usually is from 265-290° F. Oven's wide heat range also prepares shop for baking the new silicon varnishes, should such decision be made in the future. Additional information on request.

DESPATCH OVEN COMPANY, Dept. CP, Minneapolis 14, Minn.

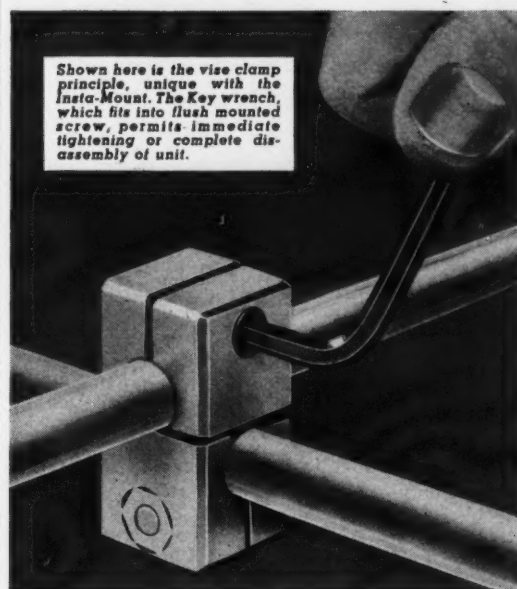
When inquiring specify CP 231 — see handy form pages 2-3

JANUARY, 1947

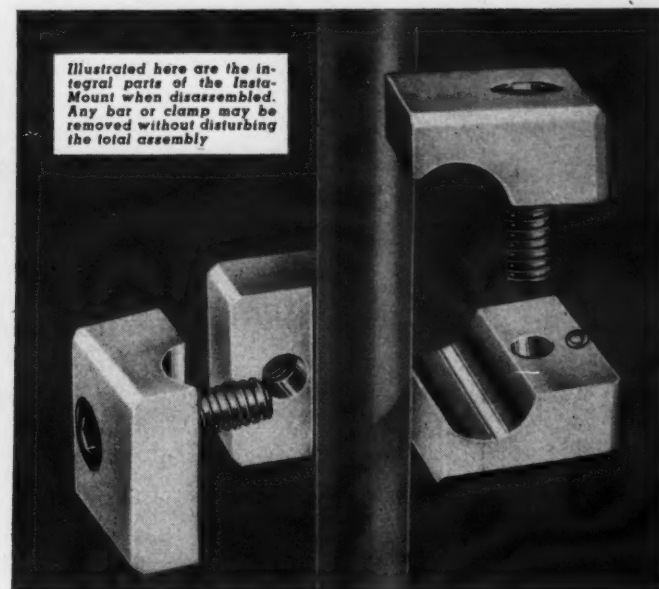
Introducing The New INSTA-MOUNT

APPARATUS SUPPORT FRAMES

Designed to Meet the Specific Demands of Modern Laboratory Installations!



Shown here is the vise clamp principle, unique with the Insta-Mount. The Key wrench, which fits into flush mounted screw, permits immediate tightening or complete disassembly of unit.



Illustrated here are the integral parts of the Insta-Mount when disassembled. Any bar or clamp may be removed without disturbing the total assembly.

Representing three important advances in both the design and manufacture of apparatus support frames, INSTA-MOUNT is indispensable for pilot plant assemblies and laboratory set-ups. Capable of giving longer and more satisfactory service, INSTA-MOUNT offers these major advantages:

1. MAXIMUM RIGIDITY

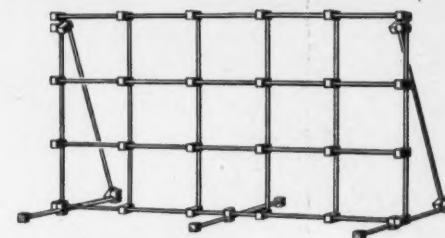
Operating on a new vise principle, instead of depending upon uncertain screw strength, INSTA-MOUNT provides 100 TIMES THE GRIP of currently available laboratory clamps.

2. MAXIMUM VERSATILITY

With INSTA-MOUNT, a set-up is easily and quickly modified without dismantling the entire framework, as necessary with the old type clamp. Each half of each INSTA-MOUNT Clamp is independently disengageable—permitting removal or relocation of any single bar without disturbing other bars and clamps.

3. MAXIMUM SAFETY

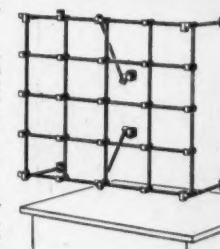
INSTA-MOUNT Clamps and Bars are individually precision machined from 17ST Duraluminum. This affords maximum strength with minimum weight. No low melting point alloys are used. At the same time, flush mounting of INSTA-MOUNT Clamping Screws minimizes danger of glass breakage by protruding parts.



INSTA-MOUNT Set "A"

Pilot Plant Assembly

Insta-Mount clamps (dismountable vises) wall and floor flanges to provide for the assembly of a 48" x 72" chassis. Insta-Mount Set "A" may be mounted on floor, wall or table. **\$64.50**



INSTA-MOUNT Set "B"

Lab Assembly

Provides a convenient laboratory table chassis up to 24" x 48". Insta-Mount Set "B" may be mounted on wall or table. **\$38.50**

THE EMIL GREINER CO.

161 SIXTH AVENUE



NEW YORK 13, N. Y.

Branch Offices: 5709 GROVE STREET, OAKLAND, CAL.

• 112 BROADWAY, CAMBRIDGE, MASS.

When inquiring specify CP 232 . . . see information request blank, pgs. 2-3

Water Cooling Towers of C. H. Wheeler
shown Cutting Towers of same material and
found that they were better than any other



COOLING TOWERS ENGINEERED FOR ANY CLIMATIC EXTREMES

C. H. Wheeler Water Cooling Towers are installed in practically every State and in many other countries where the weather is cold, such as Canada, arid as in Mexico, and tropical as in Colombia, South America. From this it is obvious that every water cooling tower presents its own individual engineering considerations, in order to insure correct operation under the climatic extremes of its location. . . . C. H. Wheeler Water Cooling Towers have one exclusive feature which is "Our Experience," and this is second to none. We have been building cooling towers since the days of horse cars and gas light, so today no water cooling problem would be new to us. We guarantee every one of our towers to produce the results for which it is designed.

C. H. WHEELER MFG. COMPANY
1810 SEAGLEY AVENUE, PHILADELPHIA 22, PA.
REPRESENTATIVES IN MOST PRINCIPAL CITIES



C. H. Wheeler OF PHILADELPHIA

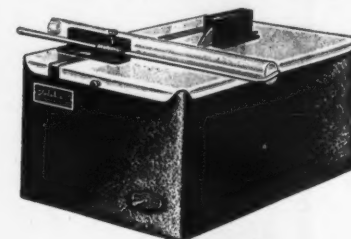
Production

Glass Tube Cutter Saves Time; Slices Porcelain, Pyrex, Silica

*Handles 1/2" Pyrex, 3/4" soft glass;
crystalon cutter wheel included*

USES — Glass tubing cutter for use in cutting Pyrex or soft glass, silica or porcelain tubing. Because practice vastly improves the operator's technique, it is difficult to specify exact sizes which may be handled.

FEATURES — Pyrex glass tubing up to approximately 1/2" outside diameter can



Glass tubing cutter

be scored or grooved, and soft glass tubing up to about 3/4" OD easily handled. Tubing is then snapped apart. With silica or porcelain tubing, cutter completely severs the piece. Instrument is equipped with a 5" wheel and a crystalon wheel 1/16" thick. Latter is recommended for cutting larger sizes of Pyrex glass tubing. Eliminates time-consuming practice of scoring or notching tube with a triangular file. Operates rapidly and efficiently over long periods. Entire apparatus is enclosed, cutting wheel being protected by a guard. Top is easily removed for changing wheels or maintenance. Rack inside of case stores extra wheels. Sliding carriage with adjustable gauge facilitates cutting of tubing to uniform lengths, aids in holding tubing securely for accuracy. Large tubing is scored with a groove around the tube at point to be cut. When groove encircles tube, tube may be held against wheel in one place, and generated heat causes separation along prepared groove. To recondition steel cutting wheel, coarse carborundum hone may be used without removing wheel from cutter.

DESCRIPTION — Cadmium-plated steel top, black wrinkle sides. Wheel speed, 3400 rpm, V-belt drive. Oilite bronze bearings. Toggle switch.

EBERBACH & SON COMPANY, Dept. CP,
Ann Arbor, Mich.

When inquiring specify CP 233
— see handy form pages 2-3

For more information on product at left, specify CP 234
... see information request blank between pages 2-3.

NEW

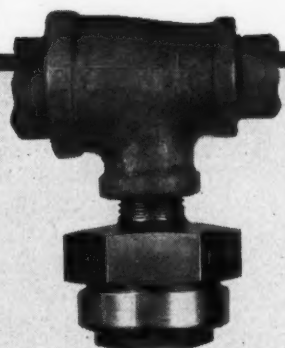
BLAW-KNOX

AQUATOMIC

FOG NOZZLE

FOR BETTER

FIRE PROTECTION



Ideal for fixed sprinkler installations—the new Blaw-Knox Aquatomic Nozzle sprays, cools and quenches—free flowing and non-clogging—maintains pattern at reduced pressure—a real advance in nozzle design.

Consultation invited



BLAW-KNOX

SPRINKLER DIVISION

831 Beaver Ave.
Pittsburgh 12, Pa.

Offices in Principal Cities

When inquiring specify CP 235
— see handy form pages 2-3

Production

Novel One-man Clamp Trucks

Speed Incoming Deliveries

Gripping device picks up, holds 600 lbs. while load is jockeyed aboard skids for power-lifts



One-man clamp truck

being maneuvered in and out of small areas, clamp trucks can pick up and deliver loads while power-lift trucks are used on more cumbersome jobs. After picking up a box, or stack of boxes, in its jaws, truck can shuttle or jockey material onto skids or pallets, ready to be picked up by power-lifts.

DESCRIPTION — A full line of clamp trucks, including five models, is ready for immediate delivery, according to the manufacturer. They include a front shield to permit handling heavily loaded boxes without spilling contents, also a tilting frame which facilitates carrying a stack of boxes and provides extra leverage for heavy lifting. Competitively priced. For additional information write the manufacturer.

FOOD MACHINERY CORPORATION, Dept. CP, Riverside, Calif.

When inquiring specify CP 236 — see handy form pages 2-3

★

Text Explains Cause and Cure for

Concrete, Mortar Shrinkage

A 34-page treatise on the control and elimination of shrinkage in concrete and mortars gives practical information on a subject which has vital bearing on durability and serviceability of plant installations and equipment. Booklet discusses the chief factors affecting shrinkage, explains the principle of specially prepared metallic aggregate in controlling shrinkage, and describes the use of Embeco, a strengthener and shrinkage-arrestor for machinery and heavy equipment grouting, cement gun work, patching and repairing concrete. Text includes charts, graphs and technical data, presents theories of shrinkage in plain and Embeco mortars, discusses compressive strength, density and absorption, effect of reduced shrinkage on bonding, practical applications, characteristics of Embeco, and offers notes on experimental procedure. Copies of "The Action of Embeco in Concrete and Mortars" may be obtained by writing.

THE MASTER BUILDERS COMPANY, Dept. CP, 7016 Euclid Ave., Cleveland 3, O.

When inquiring specify CP 237 — see handy form pages 238

USES — One-man clamp trucks are said to complement the work of power-lift trucks in speeding in-plant movement of materials. Saves the time of two men normally required to load skids or pallets. **FEATURES** — Equipped with powerful gripping arms capable of lifting from 300 to 600 lbs., pressure for this purpose being applied by the operator as he steps on a pedal. Capable of



YOU CAN COUNT ON
VAR-I-FEEDER

Accurate

CHEMICAL FEEDING

For accurate chemical feeding VAR-I-FEEDER has the combination that counts! Only Var-I-Feeder combines tachometer count, variable speed drive and high injection rate. This exclusive combination assures accurate chemical feeding at all times — quickly and easily without interrupting feed.

OTHER IMPORTANT VAR-I-FEEDER PLUS-FEATURES FOLLOW:

- V** Illuminated re-agent head — "right side up", simpler, better.
- A** Injects against up to 100 lbs. pressure into the stream.
- R** Accurately reproduces any previous measured operation.
- I** Visible, hi-speed pump with oversize suction check-valve.
- F** Small, short-stroke piston; ample area minimum lift check-valves.
- E** Long-wearing, low-priced, easily adjusted or replaced parts.
- E** Gear head, slow speed, oversized motor.
- D** One V-belt in entire unit.
- E** Light in weight; easily portable.
- R** Ample resources for manufacture, research and financing.

Write for Bulletin VAR-I on the Var-I-Feeder, and Bulletin No. 91 on the Add-A-Feeder.

We construct and install special units for any industrial liquid process.

CHEMICAL FEEDERS DIVISION

MORSE BOULGER DESTRUCTOR COMPANY

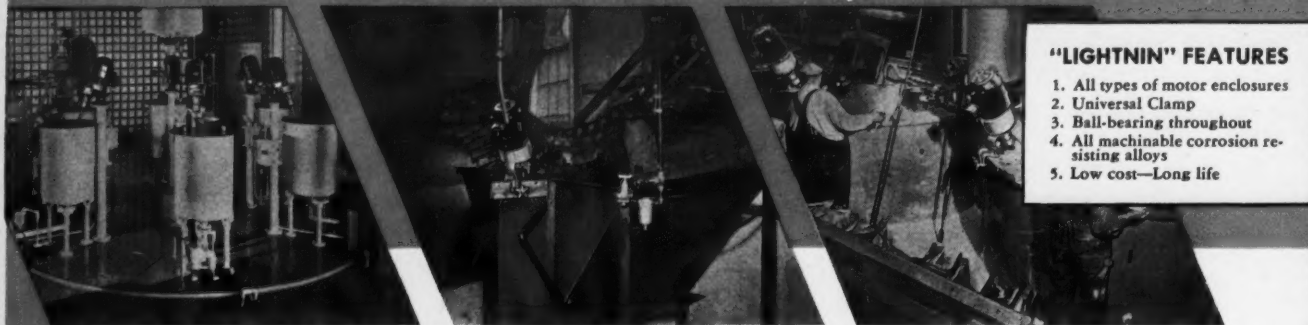
1700A, 205 E. 42nd Street

NEW YORK 17, N. Y.

PROVIDENCE OFFICE: 250 Auburn Street, Cranston, Rhode Island

When inquiring specify CP 238 — see handy form pages 2-3

Process Adapted Agitation BROUGHT TO EVERY PROCESS THROUGH LIGHTNIN PORTABLE MIXERS



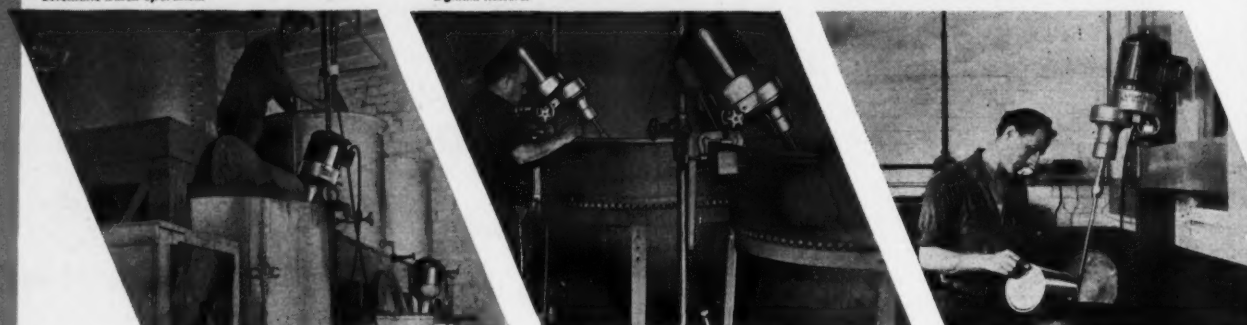
1. Unusual application of Lightnin Mixers to cyclic, automatic batch operation.

2. Point dip tank irregular shapes easily handled by Lightnin Mixers.

3. Large capacity tanks are handled with ease.

"LIGHTNIN" FEATURES

1. All types of motor enclosures
2. Universal Clamp
3. Ball-bearing throughout
4. All machinable corrosion resisting alloys
5. Low cost—Long life



4. Note Lightnin Mixers ability to fit into odd corners and different shaped tanks.

5. For food processing Lightnin Mixers improve heat transfer and uniformity.

6. Lightnin Mixer supported separately for small containers.

LIGHTNIN PORTABLES...HANDY LOW COST AGITATORS...

Where to use Portable Mixers

Whether your requirements call for mixers to operate on a wide range of tank capacities and liquid viscosities or for permanent mounting on single tanks, you can adapt "Lightnin" Portable Mixers to solve your problem efficiently.

Designed primarily for open tanks up to 8 ft., in depth, these mixers give all of the benefits of Process Adapted Agitation. Available in 1/4 to 3 H.P., direct or gear drive for liquids up to 4000 centipoises at mixing temperature.

Watch these factors:

1. The size of the batch does *not* affect the load. You can use a small mixer on a 50 gal. or a 5,000 gal. batch without danger to the motor but mixing action will be reduced to an unusable degree.
2. Watch the effect of viscosity. A mixer specified for water-like material probably operates at 80% full load. Use this on a material like molasses, and you overload and burn out your motor. Specific gravity also affects load on propellers.
3. Don't increase the propeller size. Propeller sizes are selected for specific viscosities. Increasing the propeller size can also overload and burn out motors.
4. Ask Mixing Equipment Co., whether your present mixer is adaptable to a new use or whether a different size mixer will save time and trouble.

The Basis of Our Recommendations

Twenty-five years of experience have resulted in an organization, research facilities and skill which qualify Mixing Equipment Company as a leading authority in the whole broad field of agitation. Mixing Equipment Company offers its services in the solution of any problem involving controlled recirculation of liquids to produce physical and chemical changes. See table.

Mixing Equipment

Company Offers

Complete coverage of industrial areas with service for individual user and engineers or equipment manufacturer.

Assumption of responsibility for selection of mixer size, types, performance, characteristics within limits of existing technology.

Blending Miscible Liquids	Mixing Immiscible Liquids	Crystallization	Gas Absorption and Dispersion	Suspension of Solids	Heat Transfer
Simple Mixing of soluble liquids as in reducing concentration	Washing of Liquids Extraction Contacting Cyclic Treating Emulsions	Precipitation Evaporation Systems	Hydrogenation Aeration Gas Scrubbing Chlorination Gas Washing	Slurries Staking Lime Suspension of: after acid, activated carbon, fullers earth, Crystals while dissolving	Still Evaporators Reactor Vessels Heating Cooling

PORTABLE MIXERS: 1/4 to 10 H.P. for rim attachments to open tanks. Gear and direct drives. Many exclusive conveniences. Off-center positioning. Extended bearing sealed against oil and grease leaks.

LAB MIXERS—Little brothers to "Lightnin" Portables. 4 models—Electric and Air Driven. Described in Bulletin B77.

TOP ENTERING MIXERS:—A wide range of sizes for large or small tanks—1/4 to 50 H.P. for vertical use on pressure or vacuum vessels. Integral mounting, all Impeller types, Radial Turbines and propellers. Illustration above—for open tanks.

SIDE ENTERING MIXERS—1 to 25 H.P. for horizontal use. Any size tank. Propeller type only. Many models and drives. In use on tanks up to 5,000,000 gallons capacity

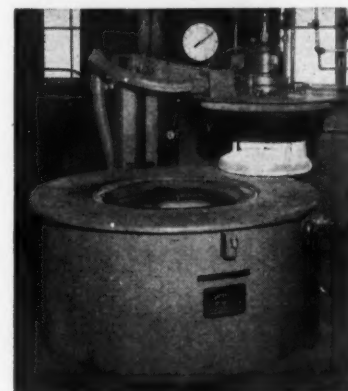
Production

Fan Distributes Gas Uniformly in Pit-type Carburizing Furnaces

1/2 hp blower, mounted on cover, used on 59.5, 77.5 and 110 kw models

USES — Electrically heated, cylindrical gas carburizing furnaces for carburizing such parts as gears, splines, pins and bearing races.

FEATURES — Rapid, uniform distribution of carburizing gas throughout the charge by means of a fan located on furnace cover. Maximum temperatures of 1800° F. Fan motor is readily accessible for maintenance and inspection. Furnace cover is lifted hydraulically, and guides are provided for preventing it from being lowered unless it is in proper position for sealing with the retort in the furnace.



Pit-type carburizing furnace

DESCRIPTION — Three furnaces, rated at 59.5 kw, 77.5 kw and 110 kw. Loading baskets are 20" diameter by 24" deep, 20 x 36" and 25 x 36", respectively. A 1/2 hp fan is used on all three sizes. Tanked propane or natural gas is admitted to furnace retort as carburizing medium. Flow of gas is regulated by needle valve and a visual flow meter which are mounted on operator's control panel. An automatic temperature control instrument and a strip chart temperature recording instrument for recording temperature of circulating atmosphere and charge of steel are also located on the panel. For further information, write.

GENERAL ELECTRIC COMPANY, INDUSTRIAL HEATING DIVISION, Dept. CP, 1 River Road, Schenectady 5, N. Y.

When inquiring specify CP 239 — see handy form pages 2-3

For more information on product at left, specify CP 240 . . . use information request blank between pages 2-3.



MIXING EQUIPMENT CO., INC.
1085 Garson Avenue ROCHESTER 9, NEW YORK

MIXING EQUIPMENT CO., INC.

1085 Garson Ave., Rochester 9, N. Y.

Please send me the literature checked:

- ☐ B-66 and B-76 Side Entering Mixers
☐ B-68 and 68B Permanently Mounted Mixers for Pressure Vessels and Open Tanks
☐ B-75—Portable Mixers (Electric and Air Driven)
☐ B-77—Laboratory Mixers
☐ M-11—Operating Data Sheet

Name
Title
Company
Address

I-R CHEMICAL PUMPS thrive on any diet!

They are available in "Ircamet", the new nickel-chromium-molybdenum alloy that is so successfully handling a wide variety of corrosive liquids and suspensions.

These chemical-tolerant centrifugal pumps are offered in the following size ranges:

CLASSES MC, MCS, NC, NCH: In Ircamet, bronze, and cast iron. Capacities up to 1300 gpm and pressures up to 100 lbs (230 ft) at temperatures up to 275°F.

CLASS CSFL: In Ircamet, alloy steels, bronze, carbon steel, and cast iron. Capacities up to 4000 gpm and pressures up to 70 lbs (160 ft) at temperatures up to 800°F.

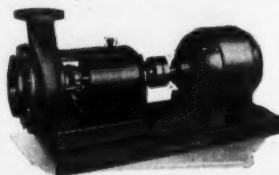
There is an I-R engineer near you, who will gladly help with your pumping problems. Ask for Chemical Pump catalog No. 7095.

Ingersoll-Rand

10-922 Cameron Pump Division
11 Broadway, New York 4, N. Y.

SEVENTY-FIFTH ANNIVERSARY

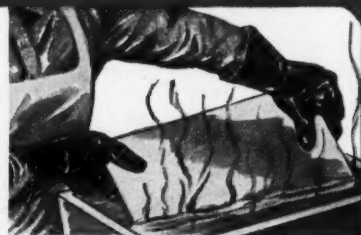
COMPRESSORS • AIR TOOLS
ROCK DRILLS • CONDENSERS
TURBO BLOWERS
CENTRIFUGAL PUMPS
OIL AND GAS ENGINES



When inquiring specify CP 241 — see handy form pages 2-3



LOOK FOR
THE FABRIC
LINING



DOUBLE PROTECTION

Edmonts give you the protection of an all-rubber glove plus a tough, rip and tear resistant inner lining of cotton fabric. The Neoprene coating is full protection against dangerous acids, and caustics. The soft, cotton lining is easy on the hands — quicker on and off. Double safety and wear is built in every pair.



501 ORANGE ST. COSHOCTON OHIO

**Fabric-Lined
RUBBER GLOVES**

When inquiring specify CP 242 — see handy form pages 2-3

JANUARY, 1947

Production

Wood Lined Pipe Gives Rust-free Mill Service

*Flanged outer lining is Toncan
copper molybdenum iron*

USES — Wood-lined, flanged pipe and fittings for conveying sulphite, sulphate, groundwood and bleached stock, clear water, white water and bleach liquor in paper and pulp mills, or for all acid solutions and gases non-injurious to wood, in process industries such as chemical, textile and rayon. Also for the mining industry. For inside mill service.

FEATURES — Light in weight, convenient to install, materially reduces metal specks and rust in flow, because of wood lining. Each pipe furnished to exact length required. Saves money on installation. Improves quality.

Before wood lining is installed, all tubes and fittings are painted with high quality, corrosion-resistant paint. After fabrication, a heavy exterior corrosion-resistant paint is applied.

DESCRIPTION — Michigan Wood Lined Pipe. Furnished in 14 to 10 gauges of various exact lengths up to 20', with clear Douglas Fir wood stave lining approximately 1" thick. When available, Redwood, Cypress, other woods may be used. All types also available in Byers genuine Wrot Iron in place of steel, with fittings of same type. Both steel and iron types furnished galvanized where conditions warrant. Size 4 to 30" with standard flanges to fit valves and other fittings. Standard metal cover is Toncan copper molybdenum iron, the corrosion-resistant alloy, rolled in tubes and longitudinally welded. Flanges are of copper bearing steel, faced and drilled, sized to inside of pipe. All flanged tubes and fittings are subjected to 250 lb. water pressure before lining. For size, friction charts, etc., write.

MICHIGAN PIPE COMPANY, Dept. CP,
Bay City, Mich.

When inquiring specify CP 243
— see handy form pages 2-3



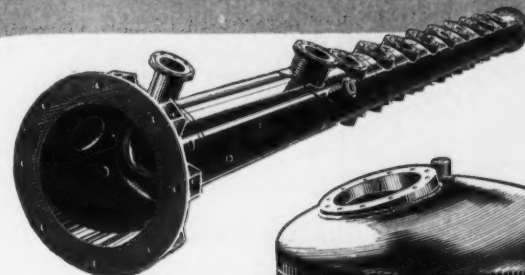
Wood lined pipe



NATIONAL

Welded Products

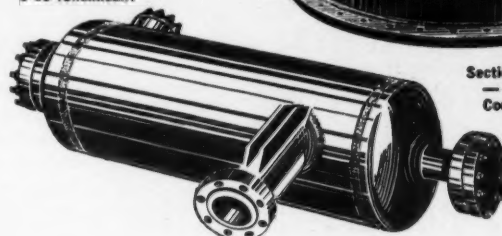
From OPEN HEARTH—STAINLESS—ALLOY and GLAD STEELS



Bubble Tower for Synthetic Rubber
24" O.D. x 40'0" L. 1/4" Wall—100#
Working Pressure. A.P.I.-A.S.M.E.



Suction Separator 450#
Working Pressure—1/4"
Shell—A.S.M.E. Code—
U-68 (Chemical).



Section of Pressure Vessel
— 48" O.D., A.S.M.E.
Code U-68 (Chemical).

MADE TO MEET MOST EXACTING CODES AND REQUIREMENTS

Fabricated equipment of most intricate design is precision built, under the watchful eyes of National's experienced engineers and master craftsmen—through forming, welding, stress relieving and machining operations, with constant X-ray and manual inspections. National's facilities are at your service, and our engineers will gladly work with you in solving your difficult fabricating problems.

NATIONAL PRODUCTS

Pressure Vessels
Galvanizing Kettles
Annealing Covers
Tin Pots
Salt Annealing Pots
Wire Annealing Pots
Special Plate Work

National

ANNEALING BOX COMPANY

API-ASME Codes • Stress Relieving • X-ray

Pledged to Quality Since 1895

WASHINGTON, PENNA.

When inquiring specify CP 244 — see handy form pages 2-3

INDUSTRY BANS RUST AND CORROSION *with* EVERLASTING FASTENINGS

Few industries can escape the destructive effects of rust and corrosion but *all* industries can reduce their costly ravages in maintenance and breakdown.

Here are five industrial applications where Harper's EVERLASTING FASTENINGS have licked rust and corrosion.

MONEL STOPS CORROSIVE CHEMICALS

Problems in salt production have been solved by using Monel bolts. In mining, treating and handling of many chemicals, non-ferrous alloys are the answer to efficient operation.

BRASS GUARDS WATER SYSTEMS

In valves and pumps that compose the heart of water works, Brass fastenings help in eliminating the most common cause of replacement—rust.

STAINLESS STEEL SOLVES OIL PROBLEMS

Acids and gases at high temperatures attack metal but Stainless Steel alloys cut refinery replacements to a minimum, assure years of continued operation.

UTILITIES CHOOSE SILICON BRONZE

Weather is the bug-a-boo in power lines and other utility applications. Silicon Bronze Bolts reduce season "cracking" and maintenance costs.

NAVAL BRONZE WINS ON THE SEA

Marine applications demand high strength plus resistance to salt air and water. Naval Bronze fastenings have proved their dependability in marine diesels and ship fittings.

THE H. M. HARPER COMPANY 2644 Fletcher Street
Chicago 18, Illinois

Branch Offices:

New York City
Philadelphia
Los Angeles
Milwaukee
Cincinnati
Dallas

Representatives in
Principal Cities

Call upon Harper to
solve fastening prob-
lems in your industry.

HARPER

Everlasting Fastenings
Chicago



When inquiring specify CP 245 — see handy form pages 2-3

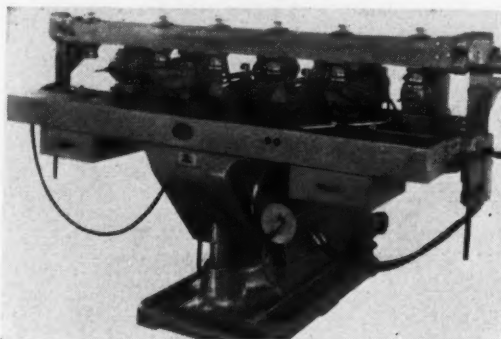
Production

Flexible Polyvinyl Tubing Defies Harmful Solvents, Hydraulic Oil

*Serves without replacement despite 200-lb.,
40-per-minute pressures*

USES — For use on hydraulic-feed machines, or wherever high, intermittent pressures cause frequent, rapid deterioration of conventional tubing.

FEATURES — Highly impervious to hydraulic oil, solvents and greases. In a typical installation, flexible compar hose assemblies were made standard equipment on boring ma-



Boring machine equipped with flexible polyvinyl tubing

chines of an Eastern manufacturer serving wood-working and allied industries. Machines have reciprocating motion, or "feed stroke," which develops between main hydraulic system at base of machine and a hydraulically-operated work clamp mounted on boring table. Intermittent pressure of 200 lbs. on tubing connecting two vital points is applied and released on a 40-per-minute average, as hydraulic oil is forced through the system. Experience had shown ordinary tubing deteriorated rapidly, particularly at terminals: a situation disastrous to production schedules. Installation of compar connections revealed that they lasted "almost indefinitely," with no perceptible wear due to flexing. Tubing is impervious to intermittent pressures necessary to operate boring spindle, and unaffected by deteriorating effects of the hydraulic fluid.

DESCRIPTION — Flexible compar hose assemblies, made of long wearing, polyvinyl resin tubing.

RESISTOFLEX CORPORATION, Dept. CP, Belleville, N. J.

When inquiring specify CP 246 — see handy form pages 2-3

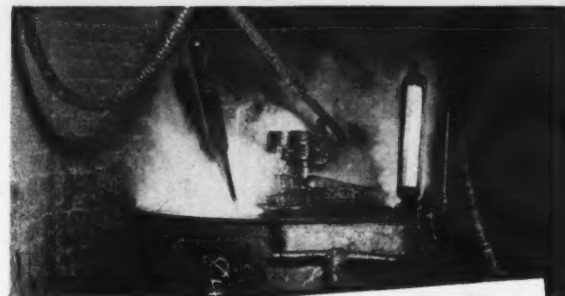
★

Gravity Boiler Feed Unit Uses Gravity Feed to Cut Steam Cost

*Unit will handle hot condensate at any temperature
and uses no electricity*

USES — Unit feeds return condensate and/or makeup water to boilers.

FEATURES — It will handle the makeup water or condensate as fast as received. It is fully automatic and requires very little steam to operate. No energy is expended in feeding as the unit operates entirely by gravity. Even the small amount of oil free steam required for operation is passed to the condensing receiver through the equalizing nozzle where it is changed into feed water. Hot condensate may be handled at any temperature without the necessity of venting to atmosphere or adding cold water. Another feature of this system is the closed condensing receiver. All air, oxygen and other non-condensable gases



PNEUMIX *Stands Up* On *Motor-Killing* Jobs!

Pneumix Air-Motored Agitators can take it. They're especially designed to handle your roughest, dirtiest mixing jobs.

Throttle gives you the speed control you need—even for varying viscosities. Pneumix operates efficiently even in high temperatures, and the Air Motor is splash-proof and fume-resistant.

Pneumix Air Motor does not spark and cannot burn out if overloaded. It is explosion-proof and fully guaranteed to safely mix inflammable materials.

Consider PNEUMIX today for those really tough jobs.

ECLIPSE AIR BRUSH CO.

393 Park Avenue • Newark 7, N. J.

ECLIPSE



When inquiring specify CP 247 — see handy form pages 2-3

*Speaking
of
Steam Traps!...SAY!*

**COE
DRAINATORS**

*the NEXT TIME
YOU ORDER*

**for these GOOD
SOLID REASONS**

1. Coe Drainators incorporate **NO MOVING PARTS** in their construction which could wear and require replacement.
2. Air binding is eliminated as large volumes of air and non-condensable gases pass through Drainators with the condensate.
3. Visible indication of Drainator's operation is afforded in the gauge glass.
4. There is no variation in heat transfer as Drainator's continuous operation prevents the accumulation of condensate and air. Consistent high efficiency is maintained.
5. Drainator installations use simple "straight-through" piping. No by-pass or extra fittings are required.

Write for Bulletin 903-B
The COE MANUFACTURING CO.
503 BANK STREET • PAINESVILLE, OHIO

DRAINATOR • THE ADVANCED STEAM TRAP

When inquiring specify CP 248 — see handy form pages 2-3

CHEMICAL PREVIEW

are automatically expelled from returns without loss of steam or water. No electricity is required for the unit's operation and no water is wasted through overflow valves. For feed water which contains the type of gases that cause corrosion, this system can be furnished with a special de-aerating condensing receiver to expel all gases held in suspension.

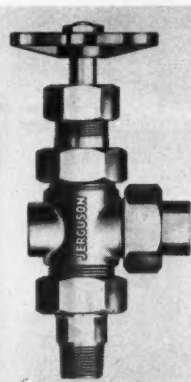
DESCRIPTION — An equalizing line is connected from the equalizing valve of the boiler feeding unit to the condensing receiver. When the boiler feeding unit is in a filling position, the steam valve nearest to the counterweight is closed and the equalizing valve is open. Boiler pressure against the check valves in the discharge line keeps them in a closed position. As the boiler feeding unit is equalized with the condensing pressure, the inlet check valve will open freely to permit water to flow from the condensing receiver into the boiler feeding unit by gravity. As water flows into the boiler feeding unit, the float rises gradually until sufficient water has entered the unit to cause the roller weight on the track to roll over. This action opens the steam valve and closes the equalizing valve. Steam direct from the boiler enters the unit. With steam pressure between the boiler and boiler feeding unit equalized, water leaves the boiler feeding unit and enters the boiler. The float gradually falls as the water flows from the boiler feeding unit, causing the track to rise in the opposite direction until the roller weight on the track rolls over again, thereby closing the steam valve and opening the equalizing valve. Steam in the boiler feeding unit then flows out through the equalizing valve and enters the equalizing line attached to the condensing receiver, and into the condensing receiver where it is changed into feed water. When pressure in the boiler feeding unit and condensing receiver is equalized in a few seconds, the filling action starts again. Literature on this installation is available.

STERLING ENGINEERING AND MANUFACTURING CORPORATION, Dept. CP, Hyde Park 36, Boston, Mass.

When inquiring specify CP 249 — see handy form pages 2-3

Union Connected Gage-Valve Means Less Production Lag

Remove gage without disconnecting valves



Union connected gage-valve

USES — Union connected gage-valve, useful on all installations where it is not practicable to shut down operations for removing the gage.

FEATURES — Gage may be removed for inspection or maintenance without disconnecting the valves. Operations, meanwhile, can continue without interruption.

DESCRIPTION — Gage-valve No. 64. Union connection to both the gage and vessel. To remove gage, the two valves are merely closed and the union connection to the gage unscrewed. Gage can then be removed. Additional information on request.

JERGUSON GAGE & VALVE COMPANY, Dept. CP, Somerville 45, Mass.

When inquiring specify CP 250 — see handy form pages 2-3

JANUARY, 1947

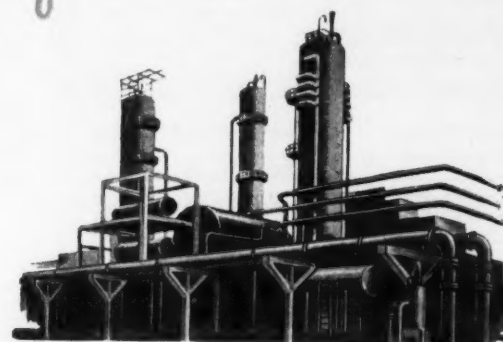
NEW ECONOMY • NEW QUALITY NEW HIGH YIELDS

in the refining of non-mineral oils!

PRESENTING...

SOLEXOL

A Continuous Process for Separating Segments of Vegetable, Animal and Marine Oils According to Molecular Weights and Structures



PERFECTED by The M. W. Kellogg Company after years of research, the SOLEXOL process—now available to industry—offers major advantages to processors of fats and oils.

SOLEXOL separates oil fractions by a method which overcomes the disadvantages of chemical or high-temperature processes. It neither destroys nor degrades any portion of the feed stock, delivering utmost yields of premium products.

Basic operating costs may be as low as a fraction of a cent to three cents a gallon. It is suitable for small or large scale operations. Pilot plant facilities are now available for the determination of exact economics of individual operations. Inquiries are invited from processors of fats and oils. *Glyceride Processes Division*, The M. W. Kellogg Company, 225 Broadway, New York 7, New York.

THE M. W. KELLOGG COMPANY

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The M. W. Kellogg Co.

New York, N. Y.
Tulsa, Okla.

Jersey City, N. J.
Houston, Texas

Los Angeles, Calif.
London, Eng.



SOLEXOL

decolorizes, separates, extracts, concentrates and deodorizes:

VEGETABLE OILS

Soybean	Peanut
Linseed	Tall
Cottonseed	Other similar types

ANIMAL PRODUCTS

Tallow	Waxes	Greases
--------	-------	---------

MARINE OILS

Fish body and liver oils having different physical, chemical and vitamin-potency characteristics.

FATTY ACIDS

From all sources

When inquiring specify CP 251 . . . see information request blank, pgs. 2-3



TUF-TRED TIRE FABRIC MATTING
A long-wearing mat for use around machinery, on ramps, and wet floors. Beveled nosing on all sides. $\frac{5}{8}$ " thick, up to 6' wide, any length.

AMERICAN COUNTER-TRED MATTING
A tough, long wearing rubber and cord mat with a resilient non-slip surface that affords safety in wet or slippery areas. Ridged bottom affords aeration and drainage. Easily handled for cleaning. $\frac{3}{8}$ " thick, 24" wide, any length.

AMERIFLEX Flexible Hard Wood Link Matting
Links are held on galvanized steel springwire framework. Beveled edges. Can be rolled or folded.

"WALRUS HIDE" Roll-Rubber Matting
36" wide, $\frac{1}{8}$ " thick, approx. 50 yards long. Write for prices and folder, "A Mat For Every Purpose", for promoting safety, providing comfort, reducing fatigue and furthering sanitation.

AMERICAN MAT CORPORATION
"America's Largest Matting Specialists"
1798 Adams Street
Toledo 2, Ohio.

The ONLY Successful OIL and GREASE RESISTANT MATTING Neo-Cord Counter-Tred
Contains no rubber
Made with Dupont Neoprene

When inquiring specify CP 252 — see handy form pages 2-3

Production

Drill and Small Parts Cabinet is Systematic, Convenient

Five drawers, slotted for partitions, offer up to 106 compartments

USES — Provides a compact, orderly storage cabinet for drills and small parts in segregated, graduated compartments or bins. For factory stock rooms, machine shops, engine rooms, supply and repair departments, assembly rooms and production departments.

FEATURES — Systematic and convenient. Useful on every workman's bench. Reduces losses and saves time, eliminating use of pasteboard boxes and similar makeshifts, and substituting a sturdy, compact unit which is scaled by compartments to receive the quantity of small items usually handled in a day's work, keeping them segregated for quick use.

DESCRIPTION — Heller's Drill Cabinet No. 32. Unit is 21 $\frac{3}{8}$ " long, 11 $\frac{1}{4}$ " high, 15 $\frac{3}{8}$ " deep, over all. Weight, 55 lbs. Top, sides and back are wood, in rich, antique oak varnish finish. Inside front, back and sides of the five drawers are slotted for wood partitions, permitting various sized compartments. As many as 106 compartments may be thus formed. For shank drills, bit stock drills, wood bits, small drill sets, screw extractors, reamers, catalogs, surplus stock, etc. Write for cataloged literature.

W. C. HELLER & COMPANY, Dept. CP, Montpelier, O.

When inquiring specify CP 253 — see handy form pages 2-3

IF YOU had to Clean the Laboratory Ware YOU would insist on ALCONOX

No matter what you want to clean . . . blood encrusted pipettes, metal ware, porcelain ware, machine parts . . . No matter how dirty or greasy they may be . . . ALCONOX will make them sparkle, film-free, streakless.

In hard water, soft water, hot or cold

Alconox is equally effective. It actually lifts off dirt, grime and grease faster than anything you have ever tried.

Saves energy, Saves time

Just wash and rinse. Toweling practically unnecessary. Economical, too. One spoonful makes a gallon of active cleanser ready to go to work on your toughest job.

Tested and Used

by many leading laboratories, hospitals, food and industrial plants. Test it yourself . . . on a tough job.

3-lb. box \$1.25; 12-box carton \$13.50
50-lb. bags @ 30c lb. f.o.b. New York

Order from your dealer

If he cannot supply you, write to us

ALCONOX Inc.

227 Greene St. New York 12, N.Y.

DEALERS Several territories open
Write for details

When inquiring specify CP 255 — see handy form pages 2-3

SYNTRON

"Pulsating Magnet"

ELECTRIC VIBRATORS

.. make stubborn materials

flow freely thru

bins

chutes

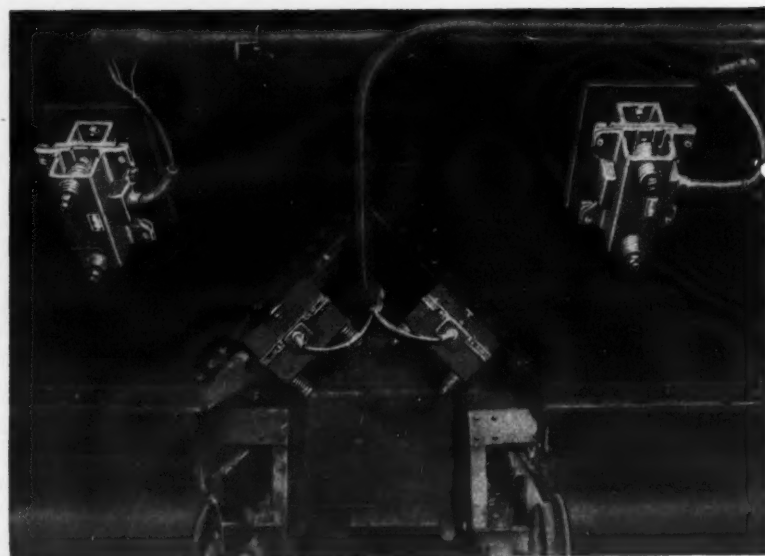
bunkers

3600 powerful vibrations per minute, breakdown arching and plugging of bulk materials without damage to prime equipment.

Write for literature

SYNTRON CO.

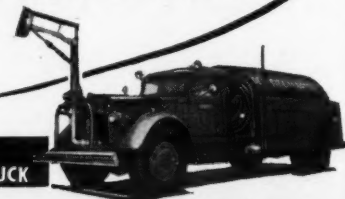
110 Lexington, Homer City, Pa.



When inquiring specify CP 254 . . . see information request blank, pgs. 2-3

CARDOX

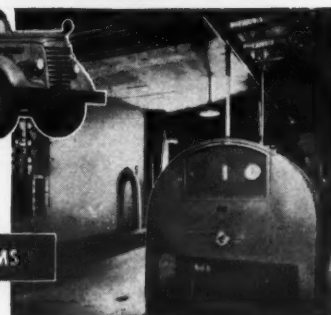
Has Broadened the Scope of CO₂ FIRE PROTECTION for Many Types of Hazards



AIRPORT CRASH-FIRE TRUCK



FIRE TRUCK



FIXED SYSTEMS

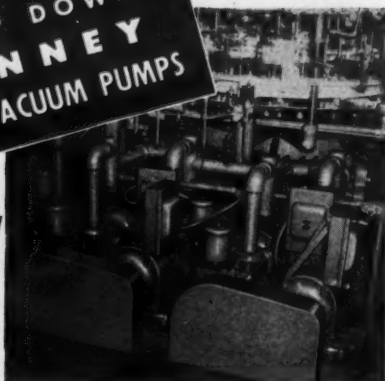
Write for Bulletin 16116

CARDOX CORPORATION
Bell Building Chicago 1, Illinois

When inquiring specify CP 256 — see handy form pages 2-3

Rapid PUMP DOWN KINNEY HIGH VACUUM PUMPS

**MAINTAIN LOW
ABSOLUTE
PRESSURES
FOR MODERN
PROCESSING**



This group of Kinney Compound Vacuum Pumps can exhaust electronic tubes faster than operators can load the machine. The view shows 5 of the more than 700 Kinney High Vacuum Pumps serving Sylvania Products, Inc. The reliability, compactness and high pumping speed of Kinney Vacuum Pumps make them the choice for countless applications, including sintering metals, coating lenses, vacuum drying, producing drugs, cyclotron evacuation, etc. Kinney Single Stage Vacuum Pumps produce low absolute pressures to 10 microns; Compound Vacuum Pumps to 0.5 micron. Write for Bulletin V45.

KINNEY MANUFACTURING COMPANY

3573 WASHINGTON STREET, BOSTON 30, MASSACHUSETTS

New York • Chicago • Philadelphia • Los Angeles • San Francisco

• We also manufacture Liquid Pumps, Clutches and Bituminous Distributors •

When inquiring specify CP 257 — see handy form pages 2-3

ELEVATE IT..with "HAMMOND" Screw-Lift

→ CUT COSTS

→ SAVE TIME

→ SAVE SPACE

→ TOTALLY ENCLOSED

→ MOISTURE-PROOF

→ DUST-TIGHT

→ FOOL-PROOF

"Hammond" Screw-Lift has shown the way to new efficiencies in many plants and mills. It has replaced bucket elevators in many instances, elevating free-flowing bulk materials to any practical height. Built so it will not choke . . . self-cleaning beyond belief. Patented stabilizer bearings at each junction permit removal of assemblies at any point.

Available for capacities of 75, 300, 1,000 or 2500 cubic feet per hour, in 4" — 6" — 9" — 12" diameters. Top or bottom drives. Any feeding or spouting arrangement. Furnished in Stainless Steel, Everdur, or any non-ferrous metals.

Write for form No. M-500-2

Screw Conveyor Corporation

633 HOLMAN ST. HAMMOND, IND. 100
TRADE MARK REG. PRODUCTS U.S. PAT. OFFICE

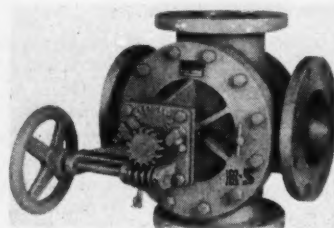
When inquiring specify CP 258 — see handy form pages 2-3

JANUARY, 1947

Production

Butterfly Valve Has 4-Way Transfer

Available in 4" to 72" sizes or
special "A" metal



Four-way transfer valve

USES — Four-way butterfly transfer valve for transferring chemicals, oil, paper pulp, sewage, water and other materials from one line to another.

FEATURES — Constructed of R-S "A" metal, a tough, dense metal of uniform grain and high endurance limit. Can be manually or automatically operated. Manufacturer recommends "A" metal installations for hard wear and severe stresses. Resists galling, "wire drawing" and wearing action of abrasive materials. Physical properties obtained by special analysis and close cupola control. Valve is available for wide pressure range, sub-zero and elevated temperatures.

DESCRIPTION — R-S Butterfly Valve, 125 lb., 4-way single vane, hand wheel operator control valve indicator and adjustable stop screws. Can also be fabricated from all types of metals in sizes from 4" to 72".

R-S PRODUCTS CORPORATION, Dept. CP, Wayne Junction, Philadelphia 44, Pa.

When inquiring specify CP 259
— see handy form pages 2-3

*

Chilled Water Unit Combines High Tonnage, Low Upkeep

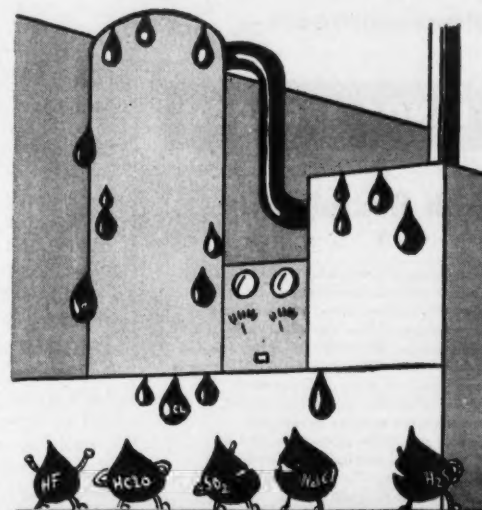
Illustrated folder describes Jensen "Short Gas Flow" Industrial Chilled Water Unit for furnishing any desired capacity of 32-degree water instantly without icing. High refrigerant back pressures permit reduced compressor power cost and increased tonnage. Diagram and text describe patented "Short Gas Flow" cooling principle. Two views of potential 150-ton industrial chilled water unit. Provisions for building original unit to receive increased capacities at later dates are explained. For chilling water, metal churns, storage, vacuum or atmosphere, also fan coolers. Write for Bulletin No. 48A.

JENSEN MACHINERY COMPANY, Inc., Dept. CP, Bloomfield, N. J.

When inquiring specify CP 260
— see handy form pages 2-3

Don't Let Corrosives 'Put the Bite'

**ON YOUR
EQUIPMENT
WALLS
FLOORS**



USE Acid Causticbond

to Protect

MASONRY — METAL — CONCRETE — WOOD

against direct contact with these
corrosive acids and caustics:

Acetic Acid
Hydrofluoric Acid
Lactic Acid
Muratic Acid
Nitric Acid
Oleic Acid
Phosphoric Acid
Sulphuric Acid

Bleach Solutions
Chlorine
Cyanides
Formaldehyde
Salt Solutions
Sodium Hydroxide
Sodium Hypochlorite
Sulphur Dioxide

Caustic Soda
Calcium Chloride
Tri-Sodium Phosphate
Escaped Flue Gases
Pickling Solutions
Fruit and Vegetable
Juices
Lubricating Oils
Refrigerants



A Portfolio of
Chemical Resistant
Coatings with
data on Protection
Products will be sent
on request.

Acid-Causticbond is a fast-drying, brush-applied, air-dry plasticized resin coating. Recommended for general application wherever Caustics, Brine, Acids, or Fumes cause corrosion or deterioration. Dries enough for re-coating in 2 to 4 hours — completely dry in 24 hours. Use on either exposed or submerged surfaces. Available in Clear, Black, and four colors.

**The
WILBUR & WILLIAMS
COMPANY**

FOR INDUSTRIAL RUBBER-COAT No. 340: Rubber resin coatings offer certain advantages of adhesion and hardness with excellent resistance to caustics and many acids.
BRINE-PROOF: For use in brine ice cans — salt water tanks — ship hulls, refrigeration equipment, etc. withstands immersion in brine.
No. 71 CONCRETE TANK LINER: Protects tanks and tank cars from High Octane Gas and Sour Oil.

When inquiring specify CP 261 — see handy form pages 2-3



**For easier
temperature
measurements—**

ALNOR PYROCON

with flexible arm

★ This contact pyrometer for surface temperature measurements is available with either flexible or rigid arm, and a choice of eleven types of thermocouples. The Pyrocon with flexible arm permits easy temperature readings in many locations otherwise inaccessible. The hand-held indicator is balanced for convenient use, and is a rugged, heavy duty instrument for reliable service under industrial plant conditions. Temperatures may be measured in liquids, molten metals, oils, bulk materials, and of surfaces, whether flat or curved, stationary or moving. Several standard ranges, 0-400 deg. F. to 0-1200 deg. F. Write for descriptive bulletin listing all types.

ILLINOIS TESTING LABORATORIES, INC.
420 NORTH LA SALLE STREET
CHICAGO 10, ILLINOIS

When inquiring specify CP 262 — see handy form pages 2-3

**The Heart
of a Good Filter
is its
FILTER LEAVES!**

**You Can Depend On
KLEIN
FILTERS and
FILTER LEAVES**

- Positive Filtration... No Clogging
- Full Drainage

Klein Ideal Diatomaceous Earth Filters and the exclusive Klein Filter Leaves, in combination, assure positive filtration at all times. Operation, cleaning and maintenance costs are at a minimum with Klein Filters. In addition, many radical innovations are incorporated in Klein Ideal Filters. You'll want to know about all of these if you have a brewing, industrial, chemical or food filtration problem in your plant.

ESTABLISHED 1909

Write for latest Klein Bulletin

KLEIN
FILTER & MANUFACTURING COMPANY
1225 29 SCHOOL STREET • CHICAGO 13, ILLINOIS

Klein Filter Leaf — If damaged, metal cloth easily replaced. No rivets. Note horizontal headers — central duct — Klein Cleanout Cap.

When inquiring specify CP 263 — see handy form pages 2-3

Production

Geared Pipe Threader Has Quick Setting Work Holder

Twin-anchored shaft turns in oilless bronze bearings and gear is completely enclosed

USES — For threading pipe.

FEATURES — The quick setting workholder affords an advantage in enabling a worker to set the threader exactly to size before placing same on the pipe. Once on the pipe only one screw needs to be tightened to hold it securely. All bothersome bushings have been eliminated. Balanced loop handles on the enclosed gear case prevent slipping or tipping over, making the instrument easy to handle and put straight on the pipe. A twin anchored drive shaft turns in oilless bronze bearings. No oil is needed. The gear is fully enclosed, packed in grease and protected from dirt and wear.

DESCRIPTION — Precision made from steel-and-malleable iron, the threader is provided with four sets of five high speed steel dies that cut clean, accurate threads standard or tapered, drip threads and short nipples. A ratchet handle is provided with each set and a special rigid design universal drive shaft is available for power drive. Complete information on this tool may be had by writing.

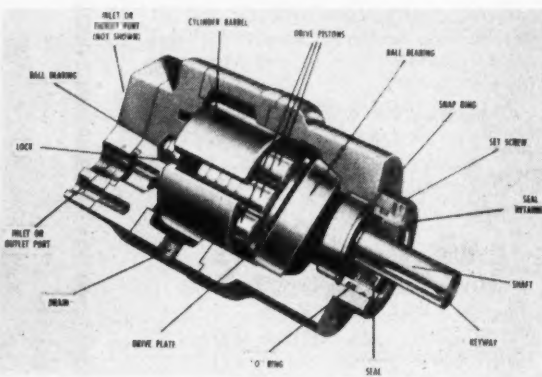
RIDGE TOOL COMPANY, Dept. CP, Elyria, Ohio.

When inquiring specify CP 264 — see handy form pages 2-3

★

Motor has Variable Speed, Instant Speed-up for Rapid Traverse

Fluid driven 3-5 hp unit offered with or without valve for presetting at any speed



Fluid motor

USES — This new fluid motor will be of special interest to those requiring rotary power with controlled variable speed, particularly where shock-loads present problems for conventional motors.

FEATURES — "Floating Drive," whereby constant pressure contact is maintained between driving and driven elements without use of mechanical linkages or connecting rods. This is said to eliminate destructive effects of backlash or inertia resulting from sudden starts, stops and reversals such as might be found in operation of indexing tables. Fully self-starting; equally efficient operation in either direction; instantly reversing; completely self-lubricating. Equipped with the speed control valve, motor can be preset to operate at any speed within its capacity.

CASE HISTORY No. 11

One in a series of factual experiences of a group of American manufacturers with Multi-wall Paper Bags.

COST COMPARISON (Per Ton)

	100-lb. Burlap Bags	Paper Bags
Container cost	\$2.00	\$.98
Labor cost . . . . .	.56	.18
Total container and labor cost	\$2.56	\$1.16
Saving per ton, paper over fabric		\$1.40

CLASS OF PRODUCT PACKED

CEMENT	FERTILIZER ✓
CHEMICALS	FOOD
FEEDSTUFFS	MISCELLANEOUS

PRODUCT CHARACTERISTICS

ABRASIVE	GRANULAR
CORROSIVE	HEAVY ✓
DELICATESCENT	HYGROSCOPIC
FLUFFY	LIGHT
FREE-FLOWING ✓	VISCOUS

ST. REGIS BAG PACKAGING SYSTEMS are made in a variety of capacities, speeds, and manpower requirements to suit specific products and plant layouts. Machines are available in types to meet the special characteristics of a wide range of products, with filling speeds as high as twenty-four 100-lb. bags per minute.

They struck it rich by changing to a **ST. REGIS PACKAGING SYSTEM**

Surveying its packaging costs with a critical eye, a limestone mining company dug deeper into the facts and uncovered a rich "find"—considerably lower packaging costs and a better container for its product.

This company—Willingham-Little Stone Company of Atlanta, Ga.—mines and processes dolomitic limestone, which is sold primarily as a neutralizer for acid soils. Formerly the product had been packaged in burlap bags. Then the company changed to a St. Regis Packaging System (packer and multiwall paper valve bags). The economies resulting from this modern packaging system were far beyond expectations:

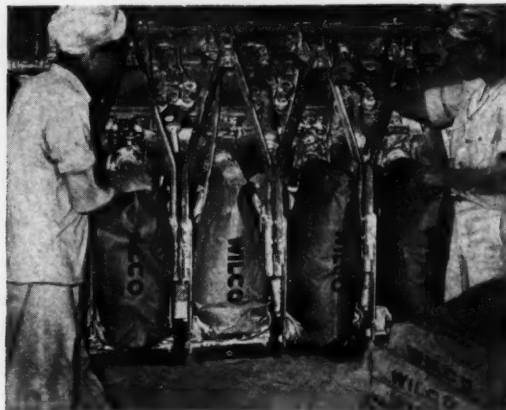
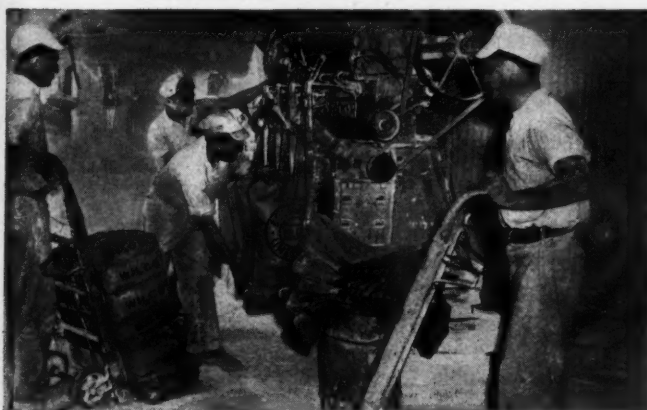
● Container costs were reduced by 51%; labor costs went down 68%—a total reduction of 63% in packaging costs!

● Packaging output jumped from 15,000 lbs. to 40,000 lbs. per hour—a 166% gain!

● Customers expressed enthusiastic approval of Multiwalls, noting that they virtually eliminated siftage and made a cleaner, easily-handled package.

This "case history" is one of many examples of the outstanding savings made possible by St. Regis Packaging Systems in the rock products, chemical, food, fertilizer industries. For the complete picture story of this efficient operation, mail the coupon to the nearest St. Regis office.

Left: The St. Regis 107-FC packer, which simultaneously fills and weighs 100-lb. multiwall paper valve bags.
Right: Four filling tubes permit uninterrupted packing.



MULTIWALL

ST. REGIS SALES CORPORATION
(Sole Subsidiary of St. Regis Paper Company)

NEW YORK 17: 230 Park Ave. CHICAGO 11: 230 N. Michigan Ave.
BALTIMORE 2: 1925 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

Mail this coupon for the complete story

Allentown Birmingham Boston Cleveland Dallas Denver
Detroit Franklin, Va. Los Angeles Newark, Pa. New Orleans
No. Kansas City, Mo. Omaha, Pa. Oswego, N. Y. Seattle Toledo
IN CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal, Vancouver.

Without obligation, please send me full details regarding "Case History" No. 11, outlined above.

NAME _____

COMPANY _____

ADDRESS _____

Production

Infinite speed variations obtained by adjusting knurled knob on side of valve. Plunger device interlocked with speed control valve allows instant acceleration from any preset speed to full speed when desired to meet any rapid traverse requirement. When plunger is released, motor returns at once to preset speed. This plunger can be controlled by lever, cam or any other arrangement user may desire to set up. Simplified design; rugged construction; standard, commercial type ball bearings; economical maintenance; moderate price. Number of working parts is reduced to minimum.

DESCRIPTION — Fluid Motor. Axial piston design. Available in 3 and 5 hp capacity, with or without speed control valve, with or without choice of geared-head units of various gear ratios. Buyers have choice of brackets for mounting motor, with equal operating efficiency, in any position desired. If motor is used without speed control valve and powered by independent pumping unit, speed may be accurately regulated by adjusting volume of oil delivered to motor. For complete specifications, write.

THE DENISON ENGINEERING COMPANY, Dept. CP, Columbus 16, O.

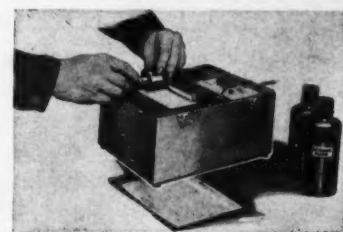
When inquiring specify CP 266 — see handy form pages 2-3

★

Duplicates Film Stencil on Tools, Parts, in 1 to 3 Seconds

17-lb. unit turns out "hundreds" of permanent etchings per film on round or flat surfaces

USES — For permanent, "production-line" marking of parts, tools, dies, bits, gauges, punches, jigs, reamers, sleeves, fixtures, chasers, arbor cutters and any round or flat metal surface. Can be used to mark steel, brass, copper, zinc, bronze, tin, cadmium plating and many other metals.



Tool and parts etcher

FEATURES — Makes hundreds of reproductions, from a single stencil film, of anything written, typewritten, or drawn. Simply place part to be marked on film, press button, and it reproduces stencil pattern in one to three seconds. Makes it easier for customers to reorder. Also prevents costly theft or loss, or use of wrong size. Etching fluid is non-aciduous, harmless on contact with hands or body. Depth of marking is controlled by rheostat and length of etching time. Has two switches: an "on-off" type for continuous work and momentary contact switch for single piece marking. Removable unit cover can be used as tray for parts to be marked.

DESCRIPTION — Ideal E-Z Mark Etcher, Catalog No. 65-001. Compact: 9 x 11 x 7 3/4" high. Rated at 15 volt amps., 115 volts AC, 50-60 cycles. Weight, 17 lbs. Complete with sponges, cloth pads, etching fluid, protective fluid and 24 films. Manufacturer also makes electric etching devices for average, everyday tool room and machine shop use. For additional information, write the manufacturer.

IDEAL INDUSTRIES, Inc., Dept. CP, Sycamore, Ill.

When inquiring specify CP 267 — see handy form pages 2-3

When inquiring specify CP 265 . . . see information request blank, pgs. 2-3

Production

Portable, Non-Tip Infra-Red Frame Combines Oven and Ceiling Fixture

Versatile unit takes any combination, any size, two types at any tilt

USES — Portable, non-tip frame for any combination of superheat units using any size clear or reflector infra-red lamps at any tilt. Can be used over, or over-and-under a belt or roller conveyor; as a ceiling installation, oven or tunnel, and in many other ways in foundries, service shops, electrical repair shops and similar locations.

FEATURES — Highly versatile. Long, sturdy, horizontal floor legs will roll beneath roller conveyors and benches. Side brackets lock after establishing any setting within 360 degree movement of superheat units. Universally adjustable end wings. Control switch and power connection mounted on back of middle section, between end wings, for complete flexibility. Dimensions altered without cost. Made for shipment knocked-down; hence, no expensive crating.

DESCRIPTION — Welded, reinforced floor assembly and vertical frame. Equipped with four 3" ball-bearing swivel castors.

THE MISKELLA INFRA-RED COMPANY, Dept. CP, E. 73rd & Grand Ave., Cleveland 4, O.

When inquiring specify CP 269
— see handy form pages 2-3

★

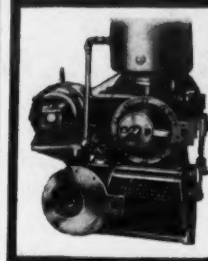
Pressure Leaf Type Filters Remove Colloidal Turbidities

A 12-page, two-color looseleaf catalog describes manufacturer's "Clearflow 200" series of pressure leaf type filters for clarifying and polishing. So-called "built-in" features offer fine filtration for complete removal of colloidal types of turbidities. Catalog describes and illustrates series in detail, showing typical installations of sizes from 10 to 350 square feet. One section devoted to removal of oil from condensate. This type filter, used widely on Army and Navy vessels with reciprocating steam-driven machinery, will remove emulsified and free oil down to one-tenth of one part per million. Included are schematic piping diagrams of simplex and duplex operations, cross-sectional diagrams and illustrations of both portable and stationary models. Write for booklet entitled, "Davis Clearflow Filters."

DAVIS FILTRATION EQUIPMENT COMPANY, Inc., Dept. CP, 60 Wall St., New York 5, N. Y.

When inquiring specify CP 270
— see handy form pages 2-3

Why You Get Sustained Top Vacuum with



BEACH-RUSS Type RP PUMPS

1. Slow Pump Speed, 200 R.P.M. — permits more effective oil sealing between rotating parts.
2. Direct positive rotary motion without dependence on gears or springs.
3. Double Bank of Exhaust Valves in series prevents air in-leakage from atmosphere back into the pump.
4. No heavy parts rotating eccentrically—hence practically no vibration.

Vacuum to 10 microns—capacities to 750 c.f.m.

BEACH-RUSS COMPANY

46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring specify CP 271 — see handy form pages 2-3

handles barrels easy

One man handles loaded barrels without rocking, straining, or lifting with a



THOMAS ONE MAN BARREL TRUCK

A faster, safer, easier way to handle barrels. Automatic load and unload. Simply contact steel prongs of truck against bottom of barrels, engage sliding truck hook in rim. Pull handles slightly, push with foot. Barrel slides onto truck in perfect balance. 1000 lb. cap. Hyatt bearings. Rubber tired wheels. Low priced. Return in 30 days if not fully satisfied.

THOMAS TRUCK
of Keokuk

Manufacturers of over 1000 different types of trucks, casters, wheels. Write for catalog. THOMAS TRUCK & CASTER CO., 6758 Mississippi River, Keokuk, Iowa.



When inquiring specify CP 272 — see handy form pages 2-3

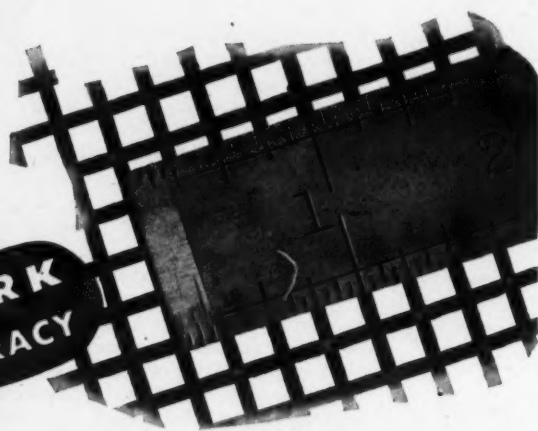
CHEMICAL PREVIEW

NEWARK

Accuracy in Wire Cloth

Decades of experience in the precision manufacture of accurate wire cloth and wire cloth fabricated products places NEWARK in an ideal position to recommend and supply the proper wire cloth for your processing.

NEWARK WIRE CLOTH is available in all commercial sizes, all weaves, all malleable metals, standard or special for every service.



NEWARK
for ACCURACY

Newark Wire Cloth

COMPANY
NEWARK 4, N. J.

336 VERONA AVE.

When inquiring specify CP 268 — see handy form pages 2-3

5-NWC-3

All-electric Truck Lifts 3 Tons 4 Inches in 4 Seconds

*Steers with full power through 270°; 2 speeds
forward, 2 reverse*

USES — Designed to handle loads of 4,000 to 6,000 lbs., this all-electric lift-truck eliminates all unnecessary pushing, pulling, tugging and strain. For use wherever heavy or light objects must be constantly raised, lowered or moved.

FEATURES — Two speeds both forward and reverse, with handle in any position. All control buttons grouped at top of steering handle: operator's hand need never leave handle. Full 4" vertical lift accomplished in 4



All-electric lift truck

seconds. Steering attained with full power through 270°. Automatic governing valve lowers heaviest loads gently to floor, does not lag with light loads. Maximum underneath clearance; will not snag on inclines, door sills, toe-plates; ideal for rough floor conditions or ramp operation. Heavy steel top plate protects mechanism from dirt or damage. Automatic automotive type brake stops truck with handle in either vertical or horizontal position. Steers easily through 14" diameter, ball-bearing turntable. Handles loads at normal walking speed either loaded or empty; no speeding of empty truck or lagging of loaded truck.

DESCRIPTION — Barrett Powerox. Heavy duty, high torque, compound wound motor driving a large diameter, wide face front wheel through double reduction precision roller chain drive. Hydraulic raising-and-lowering mechanism is heavy duty aircraft type gear pump driven by special 1 hp motor. Available in 6, 7, 9 and 11" height, all with 4" lift. Adjustable linkage provides full 4" lift throughout life of truck. Wheels turn on Timken tapered roller bearings. Motor and jackshaft supported on precision ball bearings, sealed and lubricated for life. Batteries furnished in sizes from 250 to 400 ampere hours capacity.

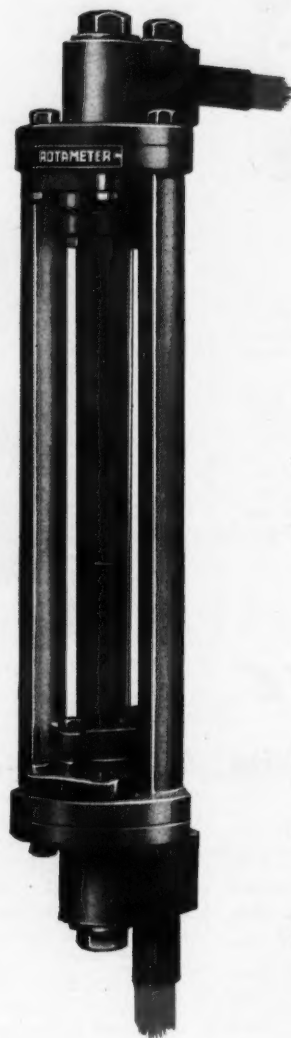
BARRETT-CRAVENS COMPANY, Dept. CP, 3255 W. 30th St., Chicago 23, Ill.

When inquiring specify CP 273 — see handy form pages 2-3

JANUARY, 1947

an *fk* "reason why"

as easy to read as to watch



fk Rotameters . . .

Are as easy to read as to watch.
You can see the liquid or gas . . .
As you read the rate-of-flow . . .
On the spot.

Only the liquid and the rotor move.

There are no gears or pinions . . .
No springs . . .
No friction parts to lubricate.

fk Rotameters are direct-connected to pipe lines . . .

Will withstand line pressures . . .
In horizontal or vertical lines . . .
In 40 different ways.

There are *fk* Rotameters for specific services.

May we guide your selection?

Send, today, for *fk* Bulletin 18-R.

Get detailed information.



SCHUTTE & KOERTING COMPANY

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND
VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS
RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS

When inquiring specify CP 274 . . . see information request blank, pgs. 2-3

In
1902



45 Years Ago

chain drives were modern

... but not in your **LIFT TRUCK**
today

If you judge a lift truck by 1902 standards, a chain drive for propulsion or horizontal travel might suffice. Strangely enough, some lift trucks are still made with old-fashioned chain drives. But 1902 standards just won't do for 1947!

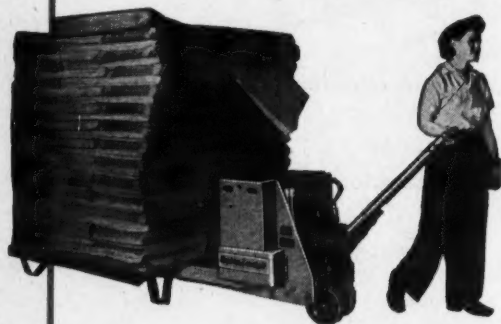
That's why we equip the HYDROlectric with a fully enclosed gear drive. As a result, the powerful, completely modern HYDROlectric is free from the excessive "drag," noisy operation, breakage and other difficulties peculiar to chain drive mechanisms.

The gear-driven HYDROlectric has far greater efficiency and dependability. Downtime is less, maintenance cost decidedly lower. Superior advantages of the HYDROlectric's enclosed gear drive are apparent on every operation—and particularly where abrasive materials easily attack and damage an exposed chain drive.

The Motorized

Hydrolectric

... with Enclosed Positive Gear Drive



Responds instantly to patented "Finger-Tip" Control, moving loads forward or backward at the mere pressing of a button! Has 4 wheels for stability, gear drive to load wheel. Cuts handling cost up to 75% ... pays for itself 5 and more times a year!

The HYDROlectric is engineered by the Stuebings, pioneers in lift truck construction since 1910. Write today for Bulletin "H" giving complete details, including prices and list of nationally known users.



LIFT TRUCKS, INC.

Walter Stuebing, President

2425 Spring Grove Ave. Cincinnati 14, Ohio

When inquiring specify CP 275 — see handy form pages 2-3

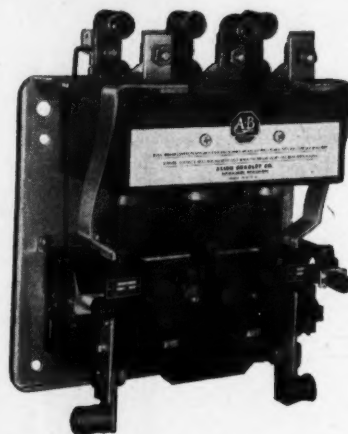
Production

300 Ampere Starter Has Solenoid Switch Construction

100 hp. max. rating, 220 volts;
200 hp. 440-550-600 volts

USES — 300 ampere solenoid starter, designed to meet demand for a larger starter with solenoid switch structure. Replaces manufacturer's Size 5 clapper starter.

FEATURES — 100 hp. maximum rating, 220 volts; 200 hp. 440-550-600 volts. Incorporates all features of manufacturer's smaller solenoid starters, i.e.: no bearings,



300 amp. solenoid starter

pivots or hinges; contact cleaning, filing, dressing avoided by use of cadmium silver contacts. Double-break contacts totally encased in an arc hood, each pole of switch having individual arc chamber. When necessary, therefore, starters can be closely grouped without flash-over between switches. Solenoid design makes possible greatly reduced size of starter compared to discarded clapper type. Increased wiring space and attractively styled enclosure. High arc-interrupting capacity of currents at least 10 times maximum hp rating is claimed. Switch has only one moving part. Plainly marked, accessible terminals. Ample wiring space between starter and cabinet. White enameled interior.

DESCRIPTION — Size 5. Enclosed model available in NEMA Type 1 sheet metal enclosure for general purpose; NEMA Type 4, water-tight, weatherproof; or NEMA Type 5, for non-hazardous dust. Construction is simple. Bulletin 709.

ALLEN-BRADLEY CO., Dept. CP, 1311 S. First St., Milwaukee, Wis.

When inquiring specify CP 276
— see handy form pages 2-3



1. TAKE A LOOK AT YOUR PRESENT LABORATORY ...

If it's cluttered with inefficient furniture ...

2. TAKE A LOOK AT YOUR PRODUCTION FIGURES ...

They may show you where you are wasting money in your laboratory. Then ...

3. TAKE A LOOK AT KEWAUNEE MATCHING STREAMLINED UNITS ...

Units are mass-produced in standard dimensions and finishes for perfect matching. Simply select individual Kewaunee units and combine them. Result—a "custom-built" laboratory at a ready-made price. Working surfaces are of KemROCK for defiant resistance to acids, alkalis, solvents, physical and thermal shock. So why not "take 3 looks" today? Then write ...

INDUSTRIAL DIVISION

Kewaunee Mfg. Co.

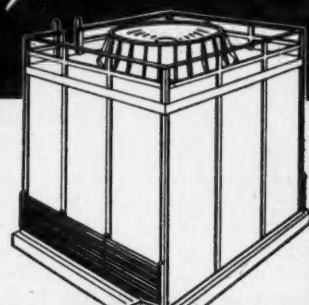
C. G. Campbell, President

5011 S. Center St., Adrian, Mich. • Representatives in Principal Cities

When inquiring specify CP 277 — see handy form pages 2-3

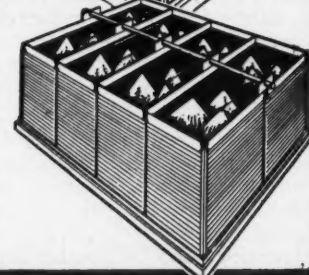
WATER COOLING

*Dependability
Economy
Efficiency*



Marley Induced Draft and Marley Atmospheric Towers are the product of a quarter century of constant development that has achieved maximum efficiency, economy and dependability.

For any cooling requirement there is a unit in the complete Marley line that accurately fits the need of air-conditioning, refrigeration or processing.



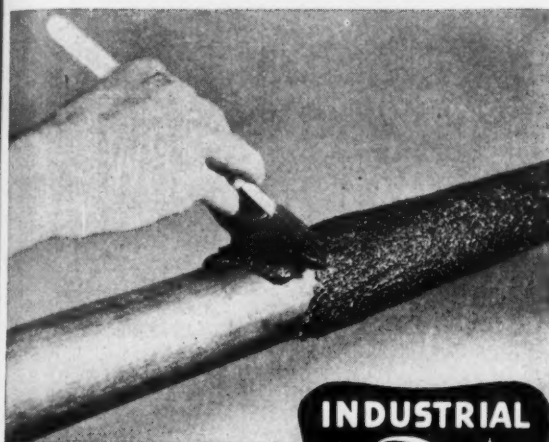
MARLEY

**COOLING
TOWERS**

THE MARLEY CO., INC. KANSAS CITY 15, KAN.

When inquiring specify CP 278 — see handy form pages 2-3

CHEMICAL PREVIEW



**COVER PIPES
TANKS, WALLS, etc.**

**INDUSTRIAL
NoDrip**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating.



STOP CONDENSATION DRIP

NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5 and 55 gal. drums, ready for use.

TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

J. W. MORTELL CO.

532 Burch St., Kankakee, Ill.

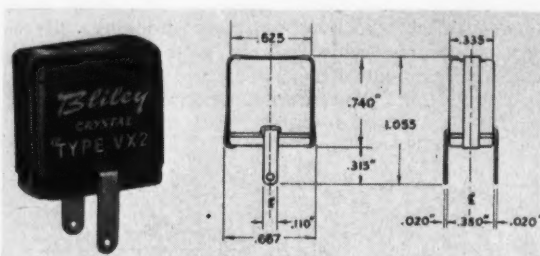
When inquiring specify CP 279 — see handy form pages 2-3

Production

Can Supply Crystal Unit at 3,000-11,000 Kilocycles

*Gasket sealed assembly and solder lug connections
replace pin contacts*

USES — Crystal unit, type VX2, specifically designed for use where space is at a premium. For example, this unit is supplied at 3105 kc for use in private aircraft transmitters.



Type VX2 crystal unit

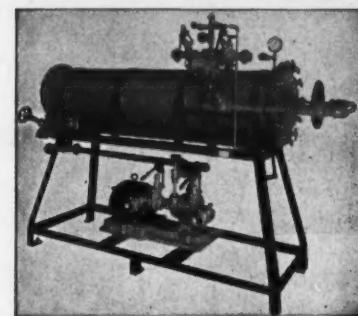
FEATURES — A compact, gasket sealed assembly and solder lug connections replace the usual pin contacts.

DESCRIPTION — Type VX2. This unit is available at any specified frequency between 3000 kc and 11,000 kc.

THE BLILEY ELECTRIC COMPANY, Dept. CP, Erie, Pa.

When inquiring specify CP 281 — see handy form pages 2-3

Large Capacity Clarification With FULLY MECHANIZED CLEANING



**LE VAL
Porous
Stone
Filters**

In POLY-FLO Models

A multiple arrangement of filterstones provides large capacity in the Poly-Flo Models of Le Val Filters. Rigidly supporting filter-aid, the porous filterstone prevents breakthrough, and positively assures brilliance of filtrate.

Cleaning by valve-controlled stripping sprays eliminates messy hand labor. Ranges of sizes and full description in new Bulletin F-103, available now.

LE VAL FILTERS WHITING CORPORATION

District engineers in 28 principal cities

15667 Lathrop Ave. Harvey, Illinois

When inquiring specify CP 282 — see handy form pages 2-3

THE NEW ERTEL "Pneumo-Vac" VACUUM BOTTLE FILLER

**FILLING SPEED MEASURED IN QUARTS—
50 BOTTLES PER MINUTE**

The new Ertel "Pneumo-Vac" Vacuum Bottle Filler is designed to reduce physical effort. It is operated by a balanced foot valve which allows the operator full use of both hands. Dripping is positively prevented while unit is in operation. Liquid filling height can be accurately and quickly regulated. Fully illustrated bulletin giving floor area, bottle heights, etc., is available without obligation. Write for copy.

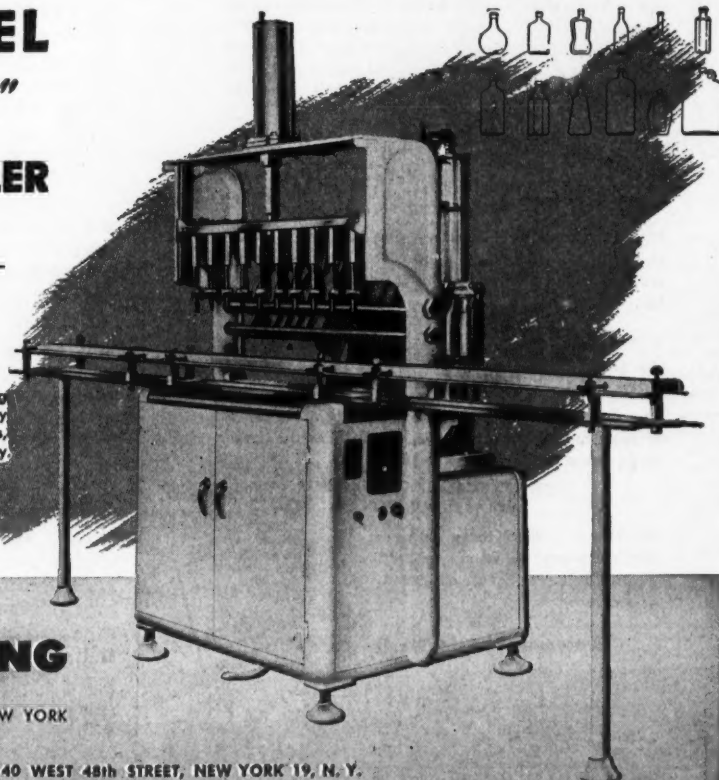


**ERTEL ENGINEERING
CORPORATION**

KINGSTON

NEW YORK

NEW YORK CITY SALES OFFICE AND SHOWROOM: 40 WEST 48th STREET, NEW YORK 19, N. Y.



INTERNATIONAL

PORTABLE MIXERS

MEDIUM and HEAVY DUTY. Modern Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

PERMANENT MIXERS

With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

**DRY BLENDERS, AUTOCLAVES,
KETTLES AND DIGESTERS**

IRON MIXERS
Belt or Motor Driven

CATALOG
On Mixers, Agitators,
Blenders, Ribbon
Mixers, etc.
No. 110 New ready
CATALOG No. 85
on BALL MILLS—
Either catalog or
both sent on request.

INTERNATIONAL ENGINEERING, INC.
Dayton 1, Ohio.

NEW YORK 15 Park Row • CHICAGO 407 S. Dearborn
LOS ANGELES 4 130 N. MORTON AVE.

When inquiring specify CP 280 — see handy form pages 2-3

JANUARY, 1947

When inquiring specify CP 283 . . . see information request blank, pgs. 2-3

Measuring Up
WITH
PERMANENT Growth

85,000
57,000

PUEBLO, COLORADO

THE LOGICAL LOCATION FOR YOUR Factory

Pueblo has experienced a 44 per cent increase in permanent residents since the 1940 census. A 44 per cent increase in only six years . . . which serves as a measuring stick for Pueblo's aggressiveness and overall growth. Just one indication of Pueblo's desirability. As the Logical Location for Your factory, this growing industrial center also measures up in . . .

RESOURCES

Coal, natural gas, and other natural resources, many yet to be exploited, are abundant.

CLIMATE

Mild winters and cool summers, with low humidity, give ideal conditions for year around operations. Storage is no problem here, where arid conditions permit open air storage.

LABOR RELATIONS

Willing native labor . . . skilled and unskilled are available for your industry.

LOCAL MARKETS

The center of a surrounding market containing 600,000 prospective consumers, Pueblo, already has the largest single industrial payroll in the state.

THE LOGICAL LOCATION FOR YOUR INDUSTRY

NOW! . . . Write today on your firm's letterhead for your copy of "12 Points To Prosperity." No obligation, of course.

Pacemaker of the West!



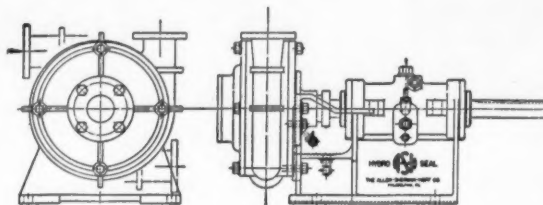
When inquiring specify CP 284 — see handy form pages 2-3

Production

Hydrosal "Rubber-Lined" Pumps Handle Sand, Slurry, Dredgings

New pump shell, two-way axial adjustment are among recent improvements

USES — Slurry, sand and dredge pumps for power plant ashes, incinerator sludge, underground excavating, moving coal storage piles, cement slurry recirculation, foundry wet blasting sand, phosphate rock, gold mine tailings recovery and flotation tailings, silica sand, sand plants, coal mine rock refuse, river dredging, oil refinery clay slurry, cement slurry, glass grinding sand, quenched slag, coal washer sludge, pigment sludge, gold cyanide mill slime, iron concentrate, lead tailings,



Improved Hydrosal slurry, sand and dredge pump

copper ore, other uses. All uses mentioned are examples of actual installations. Sand pump for materials larger than slurries; dredge pump for large and heavy materials; slurry pump for very finely divided materials. FEATURES — Efficient handling of abrasive-laden liquids substantially equal to that of clear water pumps, meaning greatly reduced power consumption; reliable performance, with initial pumping capacity and head maintained for duration of pump life, without adjustment or over-pumping; durable, soft rubber parts weigh 80% less than metal, are easily replaced in the field without vulcanizing, and mean greatly reduced maintenance. Unnecessary to maintain positive head at pump inlet; pump produces suction lifts up to 20 feet. Pumped abrasives cannot touch metal.

DESCRIPTION — Trade name: Hydrosal, so called because of introduction of controlled flow of small quantities of clear water or other grit-free solution at pressure slightly higher than pump discharge. Solution passes between both sides of rotating impeller and stationary pump side plates, entirely around each side of impeller, and mixes with abrasive-laden water. In slurry pump, hydrosaling is only on engine side of pump. Recent improvements include heavy-duty, interchangeable anti-friction radial and thrust bearings; an improved means for easy, two-way axial adjustment of shaft and bearing assembly; no rigid mounting of pump shell or engine side bell to pump base, both being supported from bearing housing. This latter feature permits pump discharge to be placed at any of the three positions indicated above. This, in many cases, will simplify installation of discharge piping and eliminate "special pump" construction to obtain this result. Blueprints of improved Hydrosal Pump will be mailed on request until new catalog is completed.

ALLEN-SHERMAN-HOFF COMPANY, Dept. CP, 1433 Locust St., Philadelphia 2, Pa.

When inquiring specify CP 285 — see handy form pages 2-3

STAINLESS-CLAD

Saves

80% MILD STEEL

1
20% Cladding of solid Stainless Steel provides 100% protection on contact side.

2
Permanently bonded backing of mild steel makes it easier to fabricate than solid stainless.

3
Costs much less than solid stainless. Backed by 14 years of continuous service in the process industries

INGERSOLL Steel Division
BORG-WARNER CORPORATION
310 South Michigan Ave. • Chicago 4, Ill.
Plants: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Michigan

INGACLAD
STAINLESS-CLAD STEEL

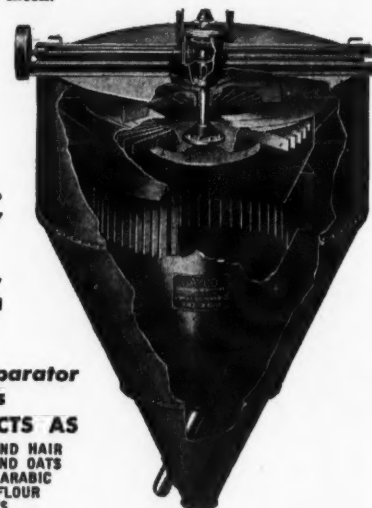
When inquiring specify CP 286 — see handy form pages 2-3

Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS
NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- Greater Capacity
- Cleaner Trailings
- 99% Through 325 Mesh
- 25% to 30% greater recovery of fines
- Not affected by variation in speed or rate of feed



The Gayco Separator Handles SUCH PRODUCTS AS

BAGASSE
CASEIN
COCAIN POWDER
COTTONSEED
MEAL
FERTILIZER

GROUND HAIR
GROUND OATS
GUM ARABIC
SOY FLOUR
SPICES
SUGAR

Universal Road Machinery Co.

RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP 287 — see handy form pages 2-3



This cut-away end of No. 251 "Shaf-tite" Wood Roll shows how beveled flanges of head are forced into end of solid wood by 150-ton hydraulic press, providing strongest possible setting of shafts. This and many other patented features make Rodney Hunt "Shaf-tite" Rolls last longer and cost less. Sizes 4"-10" diameter. Send for catalogue today.

RODNEY
HUNT

RODNEY HUNT MACHINE CO.

273 Maple Street, Orange, Mass.

When inquiring specify CP 288 — see handy form pages 2-3

NO VALVE LIKE *Multi-Valve* IN ALL THE WORLD!

The Ludlow Multi-Valve design answers industry's need for a valve that will provide a tight closure at all pressures and temperatures — for steam, air, gas, water, oil, viscous liquids and solutions — that will give a smooth throttling action without erosion, defeat the action of scale, and virtually renew its seat automatically.

The Ludlow Multi-Stage Cone affords:

1. Metal-on-metal seating cuts scale and viscous liquids — insures positive shut-off — no simmer.
2. Multi-stage opening action reduces pressure and velocity by steps, cushioning and giving perfect throttle without erosion.
3. Multi-seat principle insures tight seal: all fluids, temperatures, pressures; prevents distortion; and cleans its seat at each closing.



M-1

LUDLOW VALVE
MFG. CO. INC. TROY, N.Y.

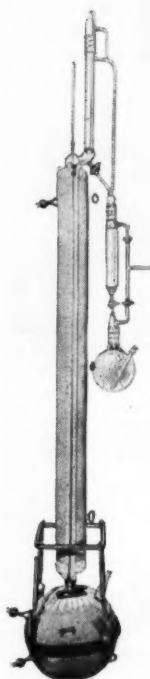
When inquiring specify CP 289 — see handy form pages 2-3

JANUARY, 1947

Production

Heat Mantles Cover Columns, Odd Sizes

Absence of flame eliminates fire hazards



Tubular heating mantle

Windows not provided unless required, since such relatively cold spots may cause flooding. Mantles for odd-sized and unusually-shaped vessels maintain a smooth, even heat against vessels, eliminating hot spots and charring of valuable organic materials. Since there is no flame, fire hazard is eliminated even though vessel of inflammable liquid should break or spill over mantle.

DESCRIPTION — Tubular-type mantles, because of the multiplicity of column diameters and lengths, are made individually to meet requirements. Columns range in length from 6" to 30', in diameter from 1 to 6". Thermocouples normally are placed near each end of mantle, may also be located at several points along column. Specific wattages furnished where requested. Mantles for unusually-shaped vessels are carefully built to fit, vary from simple constructions to fit on funnels or bottles to arrangements where heating mantle covers steel pressure vessels, pipes or other objects. For further information, write for Glas-Col Bulletin No. 2, covering manufacturer's entire line.

GLAS-COL APPARATUS COMPANY, Dept. CP, Terre Haute, Ind.

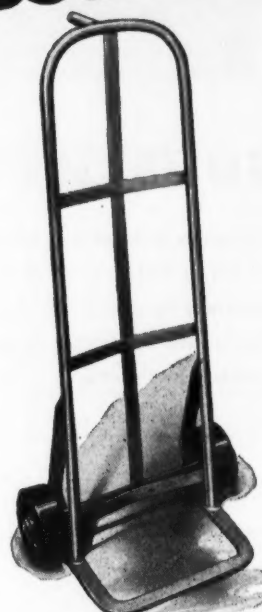
When inquiring specify CP 290 — see handy form pages 2-3

CASES, KEGS AND PACKAGES

can't walk

but it's easy wheeling

with a **WHEEL-EZY**



Cases, kegs and packages can't walk and you're wasting time, labor and money if you lug them about by hand. A Rapids-Standard Wheel-Ezy hand truck will give you easy wheeling with these bulky objects and will keep your handling costs low. Bottlers, brewers, distributors, super-markets and delivery men are finding increasing use for the Wheel-Ezy. There is a use for at least one in every plant. Strong, lightweight and perfectly balanced, Wheel-Ezy handles loads up to 500 pounds with ease. "Step-Climber" feature makes it possible to go up and down steps in easy fashion. Now available in one and two handled models, open or solid plate nose. Write for literature and price lists — no obligation.

CHOICE OF WHEELS

AGH—Demountable Cushion rubber wheels . . . it's tough. MOCH—Moulded on Cushion Rubber Wheels, moulded to metal core. ABK—Plastic wheel with laminated fabric tread, moulded under heat and pressure. MRK—Resinoid Wheels made of sturdy canvas duck, macerated and moulded under heat and pressure. Plain or Roller Bearings. NICO STEEL—Fine quality grain castings, fully machined. Oilite Bearings, zerk lubrication. GP—General Pneumatic with 10" x 3.50" demountable rubber tires.

OFFICES IN PRINCIPAL CITIES



Manufacturers of
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

The Rapids-Standard Co., Inc.

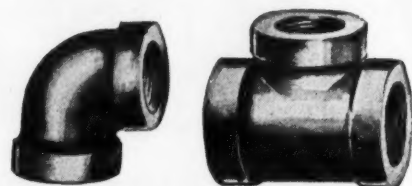
Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP 291 — see handy form pages 2-3



FOR INDUSTRY'S PIPELINES

Here is a wide range of sizes and types of valves and pipe fittings for industrial uses. Don't delay—contact your nearest WAA Regional Office immediately to assure getting the particular items you need. The entire inventory is priced well below distributor's costs.



FITTINGS

MATERIALS: Cast Iron, Malleable Iron, Steel, Brass.

SIZES: 1/4" to 36"

PRESSURE: 125 lbs. p.s.i. to 3000 lbs. p.s.i.



VALVES

TYPES: Gate, Globe, Angle, Check, Plug, Cross.

MATERIALS: Iron, Brass, Steel.

SIZES: 1/4" to 36"

END CONNECTIONS: Screw, Flange, Welded, etc.

PRESSURE: 100 lbs. p.s.i. to 3000 lbs. p.s.i.

WAR ASSETS ADMINISTRATION

GOVERNMENT
OWNED
SURPLUS

Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Denver • Detroit • Fort Douglas, Utah • Fort Worth • Helena • Houston • Jacksonville • Kansas City, Mo. • Little Rock

All valves and fittings are sold under existing priority regulations. VETERANS OF WORLD WAR II are invited to be certified at the War Assets Administration Certifying Office serving their area, and then to purchase the materials offered herein.

This material is available for export. Any question on export control should be referred to Office of International Trade, Department of Commerce, Washington, D. C.

Los Angeles • Louisville • Minneapolis • Nashville • New Orleans • New York • Omaha • Philadelphia • Portland, Ore. • Richmond • St. Louis • San Antonio • San Francisco • Seattle • Spokane • Tulsa

827-1

Production

Rotary Unscrambling Table Makes Order From Chaos

Channels cans, jars and bottles from containers to conveyors

USES — Rotary unscrambling table for orderly, systematic and constant loading of conveyors or conveying equipment from a confined area, around corners, etc. A convenient production line "feeder" for use where space is limited. For cans, jars, bottles and similar objects.

FEATURES — Saves time, labor and space.

Easily operated: Carton or case is placed on revolving table, then removed, leaving contents on the table. Individual items such as bottles, cans or jars are automatically rotated, shunted by a guide bar into channel proceeding toward destination in orderly procession, one after the other. Requires no manual effort or attention. Tilting unloading table facilitates flow of goods into production channel. Drive mechanism is easily accessible.

DESCRIPTION — Trade name: Styl-O-Matic. Unit performs similar operation to manufacturer's Straightline Table, except that it has less capacity and is less expensive. Further information is available by writing manufacturer.

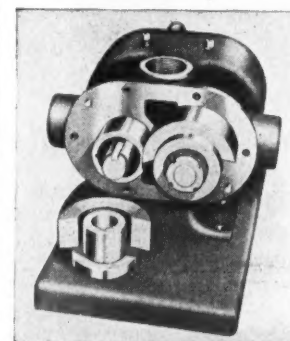
ISLAND EQUIPMENT CORPORATION, Dept. CP, 101 Park Ave., New York 17, N. Y.

When inquiring specify CP 293 — see handy form pages 2-3

★

Rotary Type Pump Operates on 29 Inch Vacuums, High Pressures

Large chambers permit handling solid-bearing liquids without jamming or crushing



Interior of Rotor-Type Pump With One Impeller Removed
Constructed with two impellers which operate slowly without churning, vibration or agitation. These are so designed and mounted to create floating, balanced position within pump, reducing

USES — Rotary type pump designed to operate on vacuum up to 29" and pressure of several hundred pounds. Pumps liquids containing foreign matter or solids.

FEATURES — Large internal pumping chambers permit pumping liquids bearing foreign matter or solids without jamming pump or crushing material. Constructed with two impellers which operate slowly without churning, vibration or agitation. These are so designed and mounted to create floating, balanced position within pump, reducing

CHEMICAL PREVIEW

When inquiring specify CP 292 . . . see information request blank, pgs. 2-3

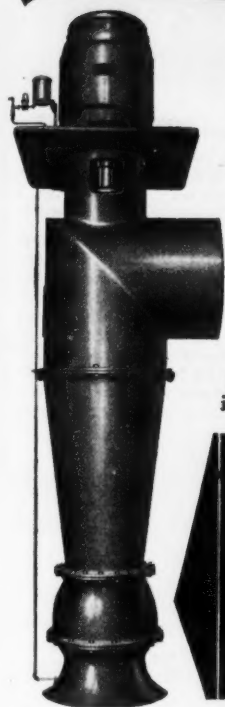
PEERLESS Hydro-Foil PUMPS

Move huge volumes of water
against low and medium heads

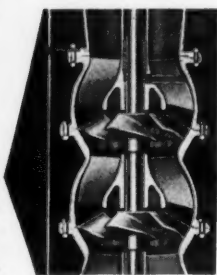


**PEERLESS
MIXED-FLOW
PUMPS**

**CAPACITIES: UP TO
220,000 G.P.M.**



Cutaway view
of Mixed-Flow
multi-stage
pump impeller
and bowl con-
struction reveal-
ing high efficiency
impellers utilized
for more econom-
ical water lift.



*To rapidly move and re-move
maximum amounts of water.*

The most modern principles of aero and hydro-dynamic design are embodied in Peerless Mixed-Flow pump design and construction, attaining new high efficiencies in large volume water lift and lowering overall maintenance and pumping costs.

Numerous successful applications of Peerless Mixed-Flow Pumps include: drainage; sewer and flood control service; de-watering; irrigation water diversion; flooding of agricultural lands; industrial and process work including condensers, circulation of liquors, etc.

PROPELLER TYPE PUMPS

Peerless pumps, embodying the Hydro-Foil principle, are also available in the propeller type and are capable of handling identical capacities of the Peerless mixed-flow pump. Request Bulletin B-148 on design, construction and application data of these two outstanding types of Peerless Pumps, for large-volume water pumping.

PEERLESS PUMPS

PEERLESS PUMP DIV. FOOD MACHINERY CORP.
Los Angeles 31, Calif., Canton 6, Ohio, Quincy, Ill.
FACTORY BRANCHES: ARDMORE, PA.; DECATUR,
ILL.; ATLANTA, GA.; DALLAS, TEXAS.
DISTRIBUTORS: PRINCIPAL CITIES

When inquiring specify CP 294
— see handy form pages 2-3

Production

wear to minimum: this principle used in both industrial and semi-sanitary models. Seal is easily removed for cleaning or repairs. Industrial models have dual intake or discharge ports.

DESCRIPTION — Made of iron, nickel alloy or stainless, according to requirement of the job. Rotor is of inverted bearing construction which places bearing directly under rotor load. Springloaded type seal with metal sealing rings. For additional information, write the manufacturer.

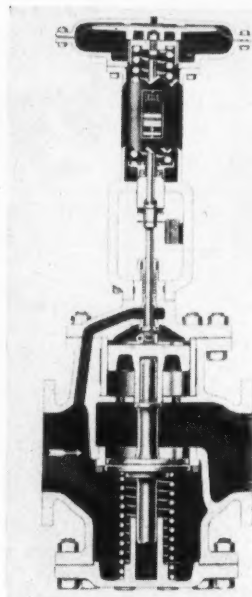
THOMSON PUMP & EQUIPMENT COMPANY, Inc., Dept.
CP, 717 W. 11th St., Los Angeles 15, Calif.

When inquiring specify CP 295 — see handy form pages 2-3

★

Diaphragm Regulating Valve Is Leak-Proof On Dead-End Service

*Design permits easy field change from direct to
reverse action*



Diaphragm regulating
valve

USES — This line of single-seated, fully balanced diaphragm regulating valves is suitable for the process industries and power plants on temperature and pressure control applications.

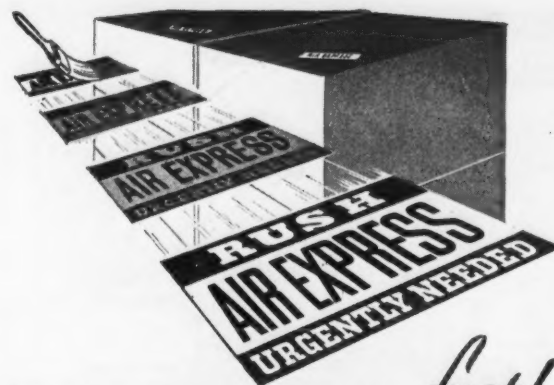
FEATURES — Supplied as standard equipment with 800 Brinell hardened stainless steel main valves and stellited seat rings, provide large capacities, and have the advantage of being tight in dead-end service, thereby eliminating leakage of fluid.

DESCRIPTION — Valves are made with cast iron, bronze, and steel bodies for steam, air or gas pressures up to 1000 psi., and are designed to be actuated by standard pressure or temperature instruments or controllers

using 20 psi. air or clean water. For temperatures over 450° F., steel diaphragm valves are equipped with a newly designed cooling bonnet that offers a large radiating surface, and the feature of a reservoir of condensate to aid in keeping the stuffing box temperature down. These diaphragm valves, designated as Classes D-1 (Cast Iron or Bronze) and DS-1 (Steel) are normally supplied with the valve below the seat in closed position, opening with diaphragm pressure. By the use of a new type reversing superstructure, the valve can be easily changed to a normally open below the seat position, closing with diaphragm pressure, without changing internal parts, removing main body from pipe line, or cutting valve stems. Complete information available on request.

LESLIE CO., Dept. CP, 281 Grant Ave., Lyndhurst, N. J.

When inquiring specify CP 296 — see handy form pages 2-3



WHEN AN ADHESIVE MUST DRY *fast!*

Drying speed requirements vary with each packaging, converting, and assembling operation: Carton labeling and over-coating should permit prompt stacking without danger of *locking* . . . envelope gumming should keep pace with high speed production . . . sheet lamination should permit immediate stacking without danger of mildewing . . . and in bookbinding, gluing-off should permit rounding and backing within 20 minutes—instead of the traditional 3 to 4 hours. All drying speeds should be maintained uniformly in fair weather and foul.

You can safely rely on National . . . a specialist in all types of industrial adhesives . . . to provide an adhesive to meet your specific drying speed requirements. Inquire—NOW! 270 Madison Avenue, New York 16 and principal cities.

National
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY TYPE OF ADHESION

When inquiring specify CP 297 — see handy form pages 2-3

★ FAST FLOW RATES with SPARKLER FILTERS

★ *because* — uniform cake is built up horizontally and retained to end of cycle. Ample freeboard is provided for run-off of filtrate.

★ LONG CYCLES — Cake is stable even during intermittent operation.

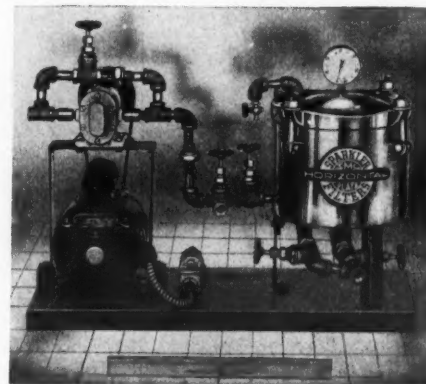
HIGH QUALITY FILTRATE

Filters out even micro-sized particles.

Pressure-tight — Leakproof
Low Cost Operation
Many sizes: 60 to 10,000 G.P.H.

SPARKLER Mfg. Co.

244 Lake Street Mundelein, Ill.



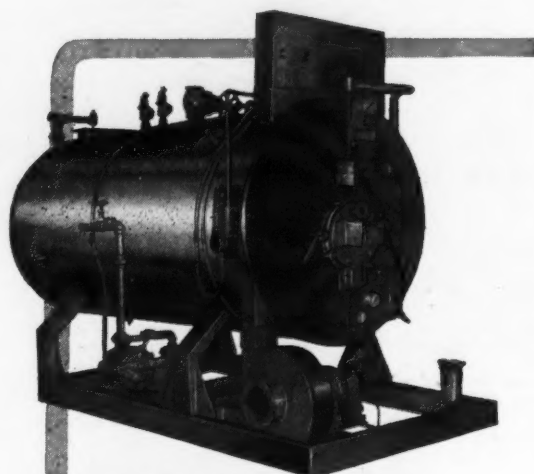
Model 8-3 Laboratory and Pilot Plant Unit
STAINLESS STEEL — Cap. 30-60 G.P.H.



When inquiring specify CP 298 — see handy form pages 2-3

Plus on performance

Minus on upkeep



AMESTEAM GENERATOR

You can't afford anything less than top efficiency in your plant. The AMESTEAM Generator insures maximum performance in your power unit — with extreme economy in both cost and upkeep. • Reliable, rugged, simple in design and operation, the AMESTEAM Generator is automatic, easy to handle. Installation is quick and simple, (no stack is needed) possible repairs are a matter of minutes. • 100 years of experience went into the development of the AMESTEAM Generator. It's the ideal unit for your plant, be it large or small, for dependable low-cost power, year after year. • In sizes from 10 to 300 H. P. and pressures from 15 to 200#. Write or phone today for full details.

A Complete Return to the Boiler System, including Feed Water Pump and Condensate Tank with their accessories, is part of the standard equipment with every standard AMESTEAM Generator.

AMES IRON WORKS
BOX 17 • OSWEGO • NEW YORK

When inquiring specify CP 299 — see handy form pages 2-3

Production

4-Ply Metal Hose Bends "Like Rubber"

Highly flexible bronze, steel and galvanized steel hose of four-wall, interlocking construction for handling steam, chemicals, hot and cold liquids, oil, tar, asphalt and similar materials is the subject of a four-page manufacturer's bulletin. Complete specifications, list prices, accessories and US Navy Department test table. Bronze hose, in all standard sizes up to 1-1/4" and 12" internal diameter, is said to be "as flexible, size for size, as rubber hose," and designed to withstand high temperatures and engineering pressures. Pressures and bending radii are listed. Galvanized steel hose for hot and cold oils, tar, asphalt, loading and unloading tank cars, tank steamers and tank trucks will not kink or burst. Recommends steel hose for highest pressures, super-heated and saturated steam, hot or cold oils, or where rough and frequent handling is involved. Sizes 1/2" and larger are reinforced with wire armor wound spirally as protection for wire braid. For boiler soot cleaning, steaming cars, vibration absorbers, open hearth furnaces, steam hose for gas holder protection, refinery stills, alcohol, gases, tar and asphalt, paints, varnish, solvents and similar applications. Graphically illustrated. Request Bulletin No. 15-B when writing.

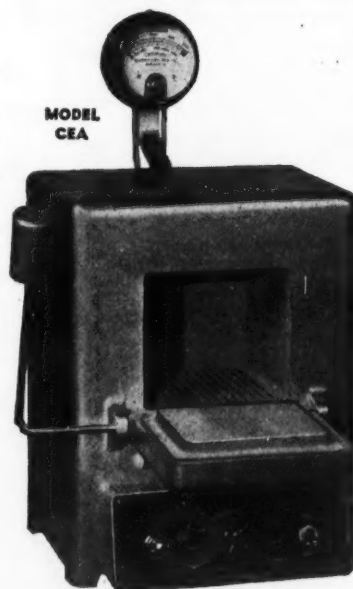
ATLANTIC METAL HOSE COMPANY, Dept. CP, New York, N. Y.

When inquiring specify CP 300 — see handy form pages 2-3

★

Electric Furnace Heats to 1500° F. in 30 Minutes

*Will automatically and continuously hold any
temperature from 500 to 2000° F.*



Fast heating electric furnace

temperature, both in Centigrade and Fahrenheit scales. Moderate cost. Strong, light weight. DESCRIPTION — Model CEA. Heating chamber measures 4-3/4" wide, 4-1/4" high, 6" deep, with overall dimensions of 12" wide, 15-1/2" high, 14-1/2" deep. One-piece aluminum castings for body and door. Counter-balanced door is hinged to swing forward, pro-

USES — Fast heating, compact electric furnace designed to offer wider utility for general laboratory use and for production heat-treating of small parts.

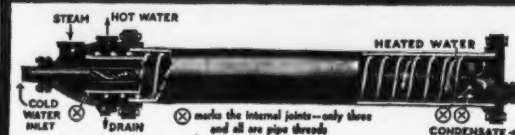
FEATURES — Will automatically and continuously hold any temperature from 500 to 2000° F. Manufacturer emphasizes fast heating: up to 1500° F. in 30 minutes. Temco variable heat control, mounted on control panel, provides any desired temperature by turning knob. Indicating pyrometer shows muffle

HOT WATER LIKE THAT!



with the

Johnson "Instant" Heater



Where steam is available, heating water or other liquids is a snap with the Johnson "Instant" Heater. Hook it right up to your high pressure steam lines—its simple, rugged design eliminates any need for reducing valves. This means *more* heating, and *faster* heating, per unit of length. Years of dependable service have made it industry's favorite—for heating water, oil, and process liquids, for preheating boiler feed water and for booster service. Available with steam chamber of full pipe-thickness copper pipe or with lower cost all steel construction. All sizes, capacities.

Write for Bulletin

The Johnson Corporation
826 Wood St., Three Rivers, Michigan

When inquiring specify CP 301 — see handy form pages 2-3

MOVE MATERIALS FASTER AT LOWER COST THE "Weld-Bilt" Way

Let a WELD-BILT engineer show you ways to speed up your materials handling methods while reducing your operating costs.

PORTABLE ELEVATORS • HYDRAULIC LIFT TRUCKS • 2 & 4 WHEEL TRUCKS • TIERING MACHINES • BARREL TRUCKS & RACKS

Leading American industries use and endorse WELD-BILT equipment. Write for illustrated folder.

The WELD-BILT Heavy-Duty Hydraulic Lift Truck — 6,000 to 10,000 lb. Capacities.



WELD-BILT
Portable Elevator

WEST BEND EQUIPMENT CORP.
226 Water St., West Bend, Wis.
Materials Handling Engineers

When inquiring specify CP 302 — see handy form pages 2-3

Production

viding handy loading platform. Efficient insulation, cast permanently inside furnace body. Special high temperature alloys for heating element, which completely surrounds chamber. Heating element safely protected against damage or chemical deterioration, yet entire muffle core with embedded heating element can be easily removed for replacement. Control panel contains "on-off" toggle switch, also neon light which glows to indicate when current is on. Ledge inside door helps seal oven opening, minimize heat loss. Available for either AC or DC current, 115 or 230 volts. Detailed information can be obtained by writing.

THERMO ELECTRIC MANUFACTURING COMPANY, Dept. CP, 480 W. Locust St., Dubuque, Ia.

When inquiring specify CP 303 — see handy form pages 2-3

★

Hydraulic Presses Combine High Pressures with Minute Control

Interchangeable rams offer wide production possibilities; units are 4-1/2 to 25 tons



Self-contained hydraulic press

USES — This versatile line of hydraulic presses is adaptable to all sizes, types of shops, metal and woodworking operations, food packing plants, etc. Used for push-broaching, forming, blanking, drawing squeeze assembly of bushings, straightening, shot pushing, other operations where positive, powerful push with minute control is required. Use of extra holding valve adapts press to certain molding or glue weld operations.

FEATURES — Finely engineered rams, interchangeable on various presses, permitting greater speeds with lower pressure rams, higher pressures at lower speeds or vice versa.

Offers a wide range of production possibilities, all with one press. Ruggedly constructed, heavily reinforced where needed, gap type to facilitate work clearance.

DESCRIPTION — Available in capacities of 4 1/2, 7, 10, 15, 20 and 25 tons, with means to limit pressures as low as required. Pressure gauges help determine pressures applied, as in laboratories and testing. Holding valve, which causes ram to be held under pressure until lever is tripped, may be ordered extra. This adapts press to certain molding or glue weld operations. Unit is available with self-contained motor drive for production work, foot operated, either mounted with bottom of press open or flush. Manufacturer will mail catalog on request.

MUNTON MANUFACTURING COMPANY, Dept. CP, Franklin Park, Ill.

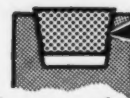
When inquiring specify CP 304 — see handy form pages 2-3

JANUARY, 1947

In ANY V-Belt It's the **SIDES** That Get the **WEAR!**

The moment you look at a V-Belt in its sheave you see at once that the *sides* of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

Notice, too—it's the *sides* that pick up all the power delivered by the driver pulley. The sides *transmit* that power to the belt as a whole. And then, once more, it's the sides—that grip the driven pulley and *deliver* the power to it.



That's Why

The FACT That the CONCAVE SIDE

(A GATES PATENT)

REDUCES Sidewall WEAR

Is IMPORTANT to You!



The fact that the *side* is the part that does the work and gets the wear explains why you have always noticed that the sidewall of the *ordinary* V-Belt is the part that wears out *first*. Naturally, then, when you lengthen the life of the sidewall you lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, *straight-sided* V-Belt gets excessive wear along the *middle* of the *sides*. They show also why the Patented Concave Side *greatly reduces* sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

Longer Sidewall Wear Is NOW MORE IMPORTANT Than Ever Before!

Now that Gates Specialized Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY, DENVER, U. S. A.

World's Largest Makers of V-Belts

GATES VULCO ROPE DRIVES

Engineering Offices
and Jobber Stocks

IN ALL INDUSTRIAL CENTERS

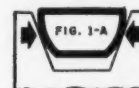
of the U. S. and
71 Foreign Countries



Straight Sided
V-Belt

FIG. 1

How Straight Sided
V-Belt Bulges
When Bending Around
Its Pulley

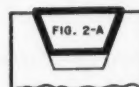


You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with
Patented Concave
Sidewall

FIG. 2

Showing How Concave
Side of Gates V-Belt
Straightens to Make Per-
fect Fit in Sheave Groove
When Belt Is Bending
Over Pulley



No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

471

When inquiring specify CP 305 . . . see information request blank, pgs. 2-3

Page 91

MOVE MATERIALS with **FEWER MEN**

Consult
DRACCO
Engineers

This illustration shows a typical application of DRACCO Pneumatic Conveyors, with ONE man and the DRACCO Pneumatic Conveyor doing the work of SEVERAL men. In many industries, DRACCO is handling chemicals, grains and granular materials more efficiently, and at less cost... with fewer man hours. Why not let DRACCO Engineers check your present material handling methods. They have had over 30 years of experience in material handling.

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring specify CP 306 — see handy form pages 2-3

Production

Oil, Abrasive-Resistant Glove is Flexible, Well Ventilated

*Neoprene-treated palm and fingers,
knit flannel back is practical*

USES — Men's knit wrist style gloves, Neoprene-treated for extra long wear. To resist water, oil and other liquids, also for handling wet or moist objects such as stone, lime and cement.

FEATURES — Can be used to replace hard-to-get leather-palm and heavy canvas work gloves.



Neoprene-treated work glove

An all-around work glove for rough, abrasive work, wet or dry. Yet, it offers free ventilation and flexibility, providing comfortable working conditions.

DESCRIPTION — Palm and fingers are coated with Neoprene, while the back is uncoated, tan cotton flannel. Prior to war, this was one of manufacturer's most popular items. Now available.

EDMONT MANUFACTURING COMPANY,
Dept. CP, Orange St., Coshocton, O.

When inquiring specify CP 307
— see handy form pages 2-3

★

Felt Seals Oil in, Dust Out of Mechanical Assemblies

Design and application of plain and laminated felt seals for mechanical sealing and packing is graphically portrayed in an 8-page technical data sheet of interest to product engineers, and prospective purchasers. Plain, impregnated, and laminated plain-impregnated seals are discussed. Under "Physical characteristics" it is pointed out that the coefficient of friction, averaging 0.22 for dry felt against steel, is reduced to 0.15 when felt is pre-saturated with oil of 41.2 Saybolt viscosity at 210° F. Tables list oil absorption capacities of SAE felts at 76° F. and dimensional tolerances and degree of housing compression for plain and laminated felt seals. Cross-sectional diagrams show housing designs for grease, oil or dust seals. Designs, selections and types are amply discussed. Write for Data Sheet No. 11.

AMERICAN FELT COMPANY, Dept. CP,
Glenville, Conn.

When inquiring specify CP 308
— see handy form pages 2-3



SPECIALIZED ENGINEERING ASSISTANCE

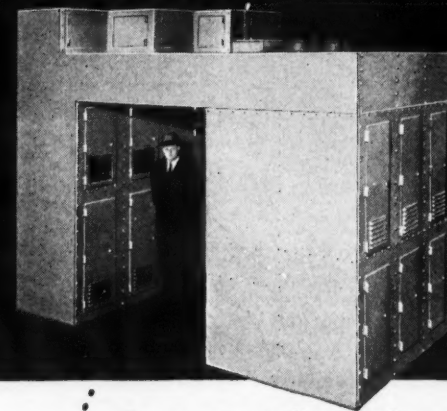
Alberene Engineers can save you valuable time—possibly money as well by reason of their comprehensive knowledge of the design, re-design, fabrication and installation of laboratory equipment.

Over 50 years of service in the finest laboratories has proved Alberene Stone's exceptional durability—performance—and year-after-year economy. Write for Laboratory Catalog. Alberene Stone Corporation of Virginia, 419 Fourth Ave., New York 16, N. Y. Sales Offices in Principal Cities. Quarries at Schuyler, Virginia.

ALBERENE STONE LABORATORY EQUIPMENT

When inquiring specify CP 309 — see handy form pages 2-3

A DEPENDABLE SOURCE... for Accurate Sheet Metal Fabrication



For 39 years leading manufacturers have relied on Kirk and Blum for custom-built sheet metal parts and assemblies. We fabricate Sheet Steel and Light Plate, stainless, Aluminum, Monel and other alloys — in all gauges up to and including 3/8" thick. Send us your blueprints for prompt quotation.

KIRK AND BLUM...
AN ORGANIZATION OF ENGINEERS AND SKILLED MECHANICS

THE KIRK & BLUM MANUFACTURING CO.
2833 Spring Grove Ave. Cincinnati 25, Ohio

When inquiring specify CP 310 — see handy form pages 2-3

CHEMICAL PREVIEW

Portable, Dustless Saw Cuts Tile, Firebrick "On the Job"

Detachable legs, 72-lb. motor permit pulling unit into kilns; water-spray lays dust

USES — Portable, dustless masonry saw for speeding construction of heat-annealing ovens, sanitary processing rooms, stair rakes, jambs, fountain niches, trim and outlets. Accurately cuts tile, brick, glazed tile, firebrick and concrete block "on the spot," gearing such cutting processes to keep pace with bricklayers.

FEATURES — Being mounted on a stand with removable legs, somewhat similar to an ironing board, entire unit can be pulled inside of a kiln or through a window. To offset clouds of choking dust, a concealed nozzle sprays a fine, splatterproof mist of water over the cutting surface, also cooling the circular blade. A spring oscillator on the blade mounting alternately applies and relaxes pressure on the tile or other object being cut, thus relieving the operator from the tedious, tiring process of pushing the tile back and forth so as to get a light, distributed cut. Tile is placed in a conveyor cart which is pushed through with a steady pressure, reducing the cutting process to one operation after the saw is set and running. Another time-saving feature is the cabinet beneath the saw carriage, where blades, chisels, marking pencils, etc., are kept.

DESCRIPTION — Saw, cutting platform, belts and motor all are mounted on the portable stand described above. Weight is held down by using a 2 hp, 72-lb. Fairbanks-Morse motor which is also said to produce enough power for heavy-duty production cutting. Self-contained water supply system and circulating pump, belt-driven from motor, provides dust-settling and blade-cooling spray. Unit is designed to use diamond impregnated or wet cutting abrasive blades. Blade is completely enclosed in metal housing. Oscillating action of blade eliminates need for foot pedal, allowing greater freedom for operator.

CHAMPION MANUFACTURING COMPANY, Dept. CP, 1307 Washington, St. Louis 3, Mo.

When inquiring specify CP 311 — see handy form pages 2-3

★

Laboratory Equipment Folder Offers Ovens, Weather Simulator, Electric Furnace

A portable cabinet for use in making weather tests on fabrics, foods, candy, pharmaceuticals, paints, rubber and other materials is featured in a six-page pamphlet which includes illustrations, descriptive text and specifications. Drying ovens, constant temperature baths and an electric furnace for laboratory operations are accorded similar editorial treatment. Hotpack Weather Simulator duplicates varied atmospheric conditions, from those of the hot, humid south to the dry, cold north, over long periods of time, delivering temperatures below room to 0° C., and holding them within a 1° differential. Relative humidity control from 45% to 95% within 5% differential. Electric furnace offers controlled heat to 1050° C., has built-in controller and indicating pyrometer. Uniflow Drying Ovens provide constant, uniform temperature from room to 180° C., within 1° C. of desired setting. Constant temperature bath units give accurate temperature to .005 plus or minus. Full details concerning construction, operation, other information. Write for literature.

THE ELECTRIC HOTPACK COMPANY, Inc., Dept. CP, 1225-29 Cottman St., Fox Chase, Philadelphia 11, Pa.

When inquiring specify CP 312 — see handy form pages 2-3

JANUARY, 1947



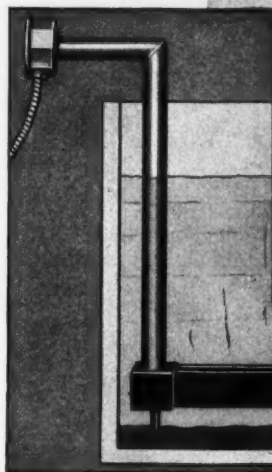
Chromy says:

"Put the Heat where you want it!"

Chromalox

Electric Immersion Heaters

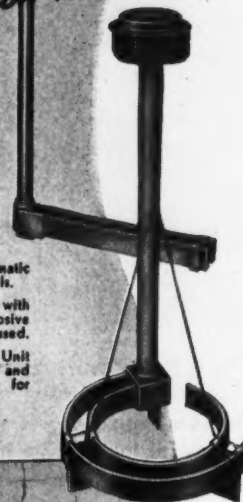
for temporary or permanent installations



Sizes 1 KW to 36 KW, automatic or manual temperature controls.

Available in many types with metal sheaths to resist corrosive action of liquids being processed.

Drawing illustrates Immersion Unit equipped with sludge-legs and installed over side of tank for direct heating.



Fast · Economical · Easy to Install

Heat is right where it's needed when you equip your plant with CHROMALOX Immersion Heaters. Versatile in application—they are used as portable or permanent heat-sources in tanks, vats and other containers.

With CHROMALOX Electric Immersion Heaters, you can accurately heat and maintain the temperature of degreasing, cleaning, pickling and plating baths. You can melt greases, asphalts and similar viscous fluids. In fact, you can put CHROMALOX Immersion Heaters to work in almost any fluid-heating job in your plant.

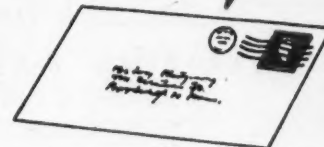
Get in touch with your CHROMALOX Application Engineer. He'll gladly recommend the right equipment to give you clean, dependable, trouble-free electric heat.



Guide to
CHROMALOX
Electric Heat
applications
Check this list

- Glue Pots
- Ink Dryers
- Cleaning Tanks
- Degreasers
- Paint Dryers
- Air Heaters
- Melting Pots
- Tempering Baths
- Heating Molds
- Soldering Irons
- Steam Boilers
- Tinning Pots
- Heat Sealers
- Oven Heaters
- Coating Tanks
- Hot Salt Baths
- Lacquer Dryers
- Space Heaters
- Baking Ovens
- Branding
- Die Heaters
- Hot Plates
- Pitch Pots
- Glue Cookers
- Driers
- Heating Castings
- Drying Ovens
- Process Kettles
- Preheating Fuel Oils
- Annealing Ovens
- Package Sealers
- Armature Heaters
- Roll Heaters
- Sterilizers
- Print Drying
- Distilling
- Radiant Heating
- Glue Setting
- Dehydrating
- Process Air Heating
- Dropping Resistors
- Humidity Control
- Heating Drums
- Tire Recapping
- Soaking Tanks
- Platen Heaters
- Embossing Dies
- Oil Baths
- Plating Baths
- Film Dryers
- Hair Dryers
- Vulcanizing
- Asphalt Melting
- Steam Generators
- Can Soldering
- Steam Superheaters
- Mold Heaters
- Babbitt Melting
- Duct Heaters
- Electroplating
- Room Heaters
- Varnish Drying
- Soil Sterilizing
- Wax Melting
- Heating Pipes
- Water Heaters
- Heating Volatile Fluids
- Heating Gases
- Galvanizing
- Heating Preforms
- Core Baking
- Labeling Adhesives
- Prevent Freezing
- Cementing Lenses
- Condensation Prevention

And Hundreds of Other Applications Throughout Industry.



FOR MORE INFORMATION ...

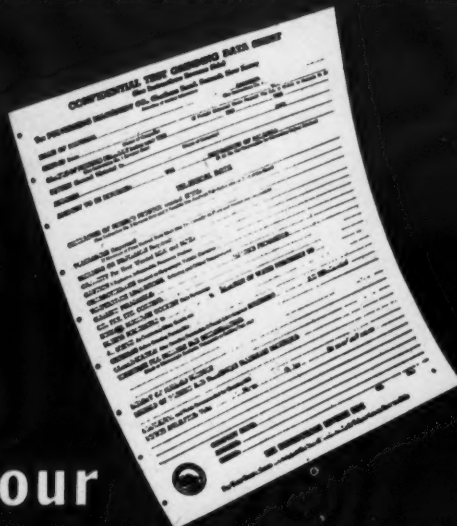
Write for "100 Ways to Apply Electric Heat" booklet, Catalog 49, and address of Chromalox Application Engineer serving you.

IC-20

EDWIN L. WIEGAND COMPANY, 7517 THOMAS BOULEVARD, PITTSBURGH 8, PA.

When inquiring specify CP 313 . . . see information request blank, pgs. 2-3

A practical approach



to your Pulverizing problem

WHEN you need finer grinding; when more uniform particle size or more thorough dispersion of your pulverized material will improve your finished product—if you feel your milling costs are too high—we invite you to take what many concede is the most practical first step toward the solution of a pulverizing problem.

Let us send you our Confidential Test Grinding Data Sheet. It is especially designed for your convenience in supplying all the pertinent information required for a competent analysis of your problem. Upon receipt of it and a working sample of your material, we can make available to you, without obligation, the facilities of our Laboratory and Test Grinding Department.

There, an actual grinding test on your sample, will, with the aid of this confidential test information, provide for a complete recommendation as to the indicated answer to your problem, and the type of equipment needed. This offers you a sound basis upon which to plan your production operations. Send for your Data Sheet today.

SEND FOR

—your copy of the new 48-page illustrated MIKRO-PULVERIZER and MIKRO-ATOMIZER catalog just issued. Contains the latest information on the improved production of fine and ultra-fine powders through mechanical pulverization.

PULVERIZING MACHINERY COMPANY

60 CHATHAM ROAD • SUMMIT, N. J.

NOW... 2 TYPES TO MEET MOST PULVERIZING NEEDS

MIKRO-PULVERIZER

MIKRO-ATOMIZER

Reg. U. S. Pat. Off.

When inquiring specify CP 314 — see handy form pages 2-3

Production

Rotary Hand Pump is Barrel Suction or Refueling Unit

*Has stainless springs, normal
cranking capacity of 10 GPM*

USES — Vane-type, rotary hand pump for use in food, chemical and other processing industries. Furnished as a "pump only;" as a barrel pump with suction pipe, bung attachment and spout,



Rotary hand pump

or as a complete refueling unit with discharge pipe, combination hose holder and vacuum breaker, gasoline hose and aluminum nozzle.

FEATURES — Capacity at normal cranking speed, 10 GPM. Rustproof working parts are said to eliminate "freezing" action due to condensation within casing when pump is not used frequently. Suction and discharge ports are threaded for 3/4" iron pipe. Priced competitively in lower brackets. Economical.

DESCRIPTION — Designed with stainless steel springs, aluminum rotor and graphite carbon vanes.

BOWSER, Inc., INDUSTRIAL PUMP DIVISION, Dept. CP, Fort Wayne, Ind.

When inquiring specify CP 315
— see handy form pages 2-3

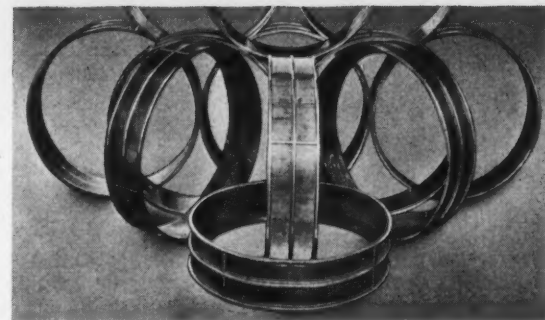
*

18" x 23" Chart Aids Welders

Those interested in welding will appreciate this manufacturer's Rod Selector Chart which lists bonding and remelting temperatures for each alloy, also Brinell hardness. Another column features strength in psi. of "Low Temperature" welding alloys. Much factual information is included, in addition to listing manufacturer's product and suggested applications. Size 18" x 23". Ask for Rod Selector Chart.

EUTECTIC WELDING ALLOYS CORPORATION, Dept. CP, 40 Worth St., New York 13, N. Y.

When inquiring specify CP 316
— see handy form pages 2-3



Centrifugal Dryer Screens — a typical Hendrick product

These stainless steel screens for centrifugal drying of chemical materials are 1/8" thick, with .015" milled and relieved slots on end-staggered centers. In fabricating these screens tolerances as close as plus or minus .0001" were maintained; an example of Hendrick's expert workmanship.

Hendrick furnishes all types of perforated metal, wedge-slot and milled-slot screens, made exactly to specifications to meet the varied requirements of chemical industries. Write for complete information.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mico Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

HENDRICK

Manufacturing Company

32 DUNDAFF STREET, CARBONDALE, PA.
Sales Offices in Principal Cities

When inquiring specify CP 317 — see handy form pages 2-3

Bulk Chemicals

are
**RAPIDLY
MOVED
WITH EASE**

by OWEN BUCKETS

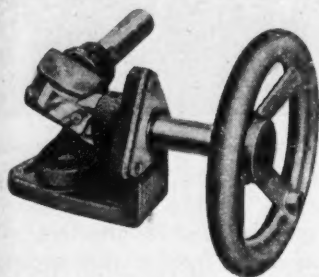
The OWEN BUCKET CO.
1000-15th Avenue
New York, N.Y.

A MOUTHFUL AT EVERY BITE

When inquiring specify CP 318 — see handy form pages 2-3

Universal Joint Provides for Remote Control Operations

Adapted especially for use by the chemical industry and for beverage handling



Adjustable from 0° to 90°

USES — Universal joint described below permits the operation of shafts around bends at angles adjustable from a straight line to a right angle.

FEATURES — Absence of back lash with the use of solid shafting makes this unit suitable for remote accurate controls and simplicity of installation makes it preferable to

some other types of mechanical equipment. Output shaft turns in exact angular rotation as the input shaft.

DESCRIPTION — This joint is constructed with a bracket to mount on a panel, angle iron, gusset plate or other structural members. Three screws hold the joint in position. The arm which holds the adjustable shaft may be hinged to any desired position 0° to 90° and when in its proper location is locked by a screw. Working load capacity varies with the angle of use and has been determined by tests. Brackets which support the joint and movable arm are of malleable iron finished in gray. Shafts are of cold finished steel of high tensile strength. Oil holes are provided for lubrication. Literature on the equipment is sent on application.

PIEZO MANUFACTURING CORPORATION, Dept. CP, 110 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 319 — see handy form pages 2-3

★

50-Hr. Metal Spraying Job Avoids 3-Week Shutdown of Main Boiler System

Latest developments and applications of metal spraying in industry are interestingly presented in a recent issue of Metco News, manufacturer's publication. Articles relate how metal spraying: (1) Avoided a three-week shutdown of main boiler system by rebuilding in 50 hours the worn section on the shaft of an induced draft fan; (2) Cut from \$6,598 to \$1,393 the cost of replacing the liner of a ship's 12,000 lb. rudder stock, eliminating five separate crane hoisting operations and doing a six-day job in 26 hours; (3) Saved \$1,500 to \$2,000 in restoration of main bearing journals of a large ammonia compressor; (4) Gave better wearing qualities to spherical surfaces of locomotive "booster balls;" (5) Reconditioned a 1,500 hp. horizontal turbine by building back to original size the bronze seal rings, water vane shafts and bucket corners; (6) Solved the problem of corrosion-prevention in 36" air valves of a lighter-than-air craft. A technical article also explains the reduction of grain growth in plain cast iron subject to high temperatures, through the use of Metcolizing, a special metallizing process. Write for October, 1946, issue of Metco News.

METALLIZING ENGINEERING COMPANY, Inc., Dept. CP, 38-14 30th St., Long Island City, N. Y.

When inquiring specify CP 320 — see handy form pages 2-3

JANUARY, 1947



SAVES TIME AND MONEY ON PACKING PAINT

"Since we discontinued our old method of packing and installed Acme Silverstitching, results have been more than gratifying. We can stitch 100 cartons now in the same time it took to glue 50. Moreover, we've realized savings in labor and material of almost 30%!"

USE THE CLOSURE COMBINATION THAT

CUTS COSTS AS MUCH AS 30%

SilverStitch

BOX STITCHING WIRE

- Always uniform in width and gauge
- Makes stronger, surer closures than other methods . . . unaffected by weather
- One-piece, continuous length, 5 and 10 pound coils . . . cuts threading time
- Galvanized to resist rust, corrosion

SilverStitchers

BOX STITCHING MACHINES

- Operate easily, smoothly, quietly
- Heavy duty construction . . . low power consumption . . . for long thrifty service
- Few moving parts . . . vital ones reversible . . . for lower maintenance costs
- Adjustable, single pedal control

Sealing Shipping Containers by Stitching is Faster, Stronger and More Economical

ACME STEEL COMPANY

NEW YORK 7

ATLANTA

CHICAGO 8

LOS ANGELES 11

When inquiring specify CP 321 . . . see information request blank, pgs. 2-3

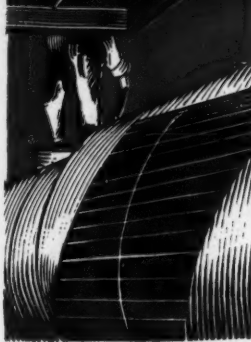
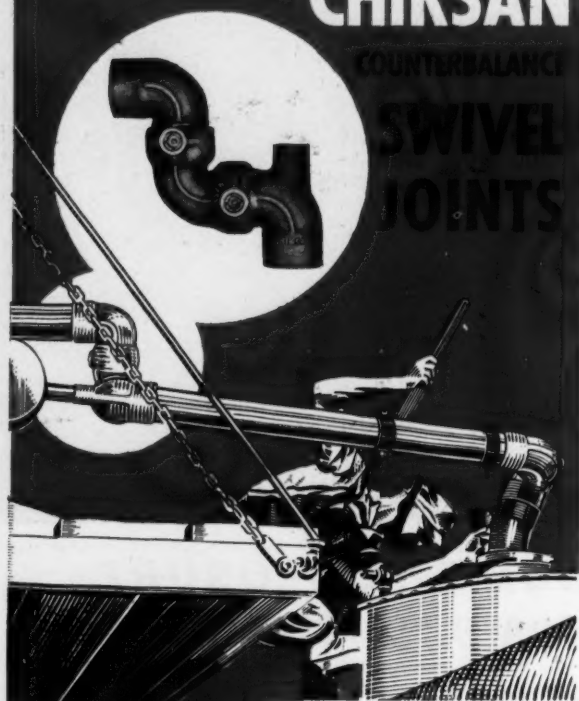
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COUNTERBALANCE

SWIVEL

JOINTS



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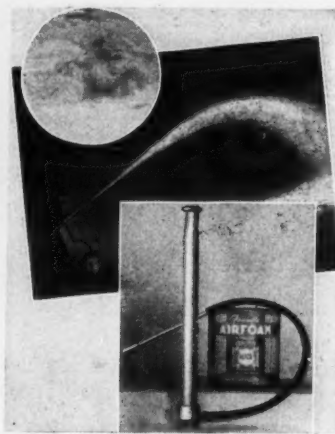
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*Instant water-to-foam conversion gives
versatility to standard equipment*



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★

ASA Year Book Lists New Projects

New material of value to engineers, executives and technical students is contained in the 1945-46 Year Book of American Standards Association, first such publication issued by the organization since 1938. Center section is devoted to listing approved American Standards and projects under development, also scope of project and the officers and members of active technical committees. Additional data covers officers and members of the ASA board, standards council, and other policy forming committees, ASA constitution and by-laws, also information on the organizational set-up, how standards are developed, examples of typical projects, international cooperation. Address list and foreign standardizing bodies are among the 38 indexed subjects. Copies mailed free to those interested. Address inquiries to the association.

AMERICAN STANDARDS ASSOCIATION, Dept. CP, 70 E. 45th St., New York 17, N. Y.

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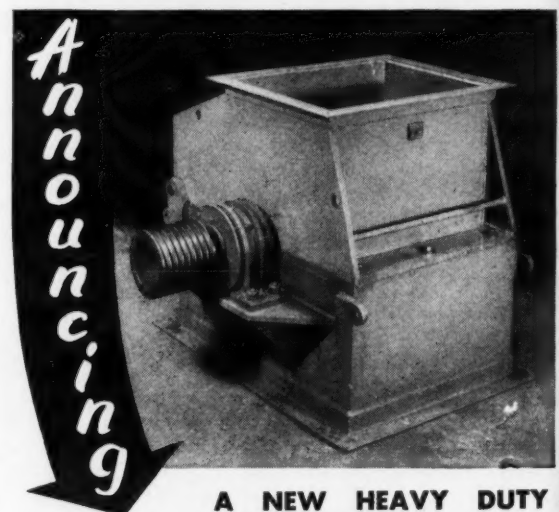


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Discussed in This Issue---

MACHINERY, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of machine, equipment or materials. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.

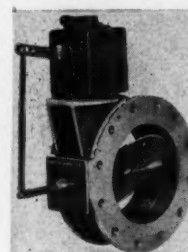
A	F	M	S
Acetyl Peroxide Solution in Dimethyl Phthalate	Fabricated Equipment	Mandrels, Tubular-type Heating	Screens, Centrifugal Dryer
Adhesives, Industrial	Fabrication, Metal	Masking, Spray Booth	Screens, Elliptical
Adhesives, Resin Emulsion	Fabrics, Filter	Materials, Basic, Non-Metallic	Screens, Liquid
Agitators, Air Motored	Fans, Double-Action	Materials Handling	Screens, Vibrating
Agitators, Drive Unit	Fastenings	Matting, Floor	Seal, Mechanically Lubricated
Air Conditioning Equipment	Fastenings, Anti-Corrosive	Metal Spraying Process	Sealing & Packing
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Chemicals	Humidity Simulator	Packaging System	Thermometers, Max-Min
Chemicals, Organic	Hydrometer, Automatic	Particle Size Apparatus	Thermometers, Stainless-Steel
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Cleaners, Soapless	Indicators, Bin Level	pH Control System	Thionyl Chloride
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Dampener, Pulsation	Etcher, Tool & Parts	Pumps, Hand, Rotary	Valves, 8, 15, 38, 56, 59, 64, 87
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Etcher, Tool & Parts	Exchangers, Heat	Rust Remover	Wire Cloth
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Make Control and Shut-Off AUTOMATIC Quick • Easy

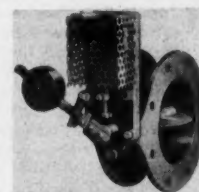
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SLIDE and BUTTERFLY
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Literature of
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Porcelain Enamelled Galvanizing Kettles

Hot dip galvanizing kettles lined with porcelain enamel have solved a problem in galvanizing. Heretofore, even with the latest type of furnace design, deterioration of ordinary steel kettles was rapid at temperatures exceeding 880 degrees F. A porcelain enameled kettle recently installed in a wire plant is operating at temperatures ranging from 900 degrees to 1000 degrees F. on special grades of wire.

English Titles Take Precedence Over Latin Names In Thirteenth Edition of U. S. Pharmacopoeia

Family medicines again receive the imprimatur of the United States Pharmacopoeia in its latest edition. In the thirteenth revision of the standard work published in December the names of a number of common household preparations, ingredients used in home medicines and various trademarked compounds will be sprinkled through the listings of official drugs. Drugs derived from primitive herbs, "old wives" remedies and household medicines of bygone centuries also appear.

USP XIII becomes official on April 1, 1947, when it will succeed the current 12th edition. It will be the first Pharmacopoeia in which English titles take precedence over Latin.

The first Pharmacopoeia was published in 1820. This thirteenth edition gives evidence that brand name medicines frequently merit acceptance as official remedies to be prescribed by physicians. Twelve trademarked drugs will be included among the 110 new compounds admitted to the Pharmacopoeia for the first time. All twelve will appear under new titles. (From Bulletin of Office of Pharmacal Information.)

Mass Availability of Isotopes for Biological and Physical Tracer Studies

Monsanto Chemical Co., operating Clinton Laboratories for the Manhattan Engineer District reported near the close of 1945 that 160 orders had been filled for radio active isotopes for biological and physical tracer studies and for experimental therapeutic use made possible by the chain reacting uranium pile. These represent great amounts in contrast with the meager quantities available through cyclotron production.

The greatest demand has been for Carbon 14, produced in the pile for \$367 per millicurie as against an estimated theoretical cost of several hundred thousand dollars per millicurie in a cyclotron. Carbon 14 is essentially a research tool being used to tag molecules so that their course in chemical reactions may be charted. It is being employed in a wide range of scientific studies among them photosynthesis, metabolism, rubber chemistry, cancer research and chemical reaction rates.

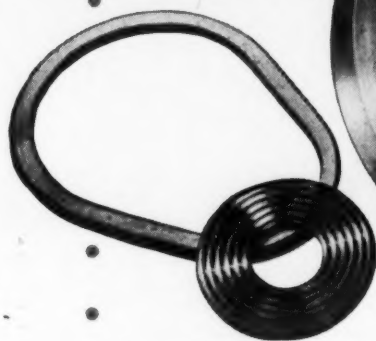
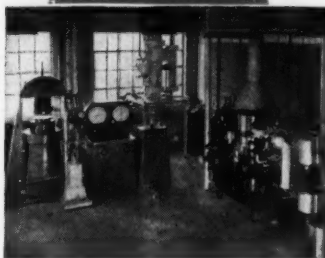
Under the isotope sale program, applications for the materials are submitted to an allocation committee of scientists where they are screened with utmost care. The isotopes are sold only for use in specific scientific or technical projects. Applications are submitted to Isotopes Branch, Research Div., Manhattan Dist., Oak Ridge, Tenn.

Color Movie Reveals True Color of Molten Steel and Slag

A colored motion picture now reveals what the human eye never before has been able to observe, the true color of molten steel and slag. The film was shot through an open furnace door by a camera set up eight feet away. Utilizing a telephoto, the camera was able to create the impression of actually being inside the furnace during the melting process. So great was the heat from the open door — 2300 degrees — that the cameraman was able to shoot sequences of only 25 to 30 seconds at a time. So excellent was the timing, the finished film provides what seems to be a continuous scene.

Slag covering the molten steel is first shown, followed by shots of the true color of the steel itself as the slag is broken apart. Animated diagrams describe the melting process from the moment the scrap is placed in the furnace until the pure stainless steel product is poured into the ladle. The film is titled, "Melting of Huron Die Steel" and was produced for the Allegheny Ludlum Steel Co. at its Dunkirk, N. Y. plant.

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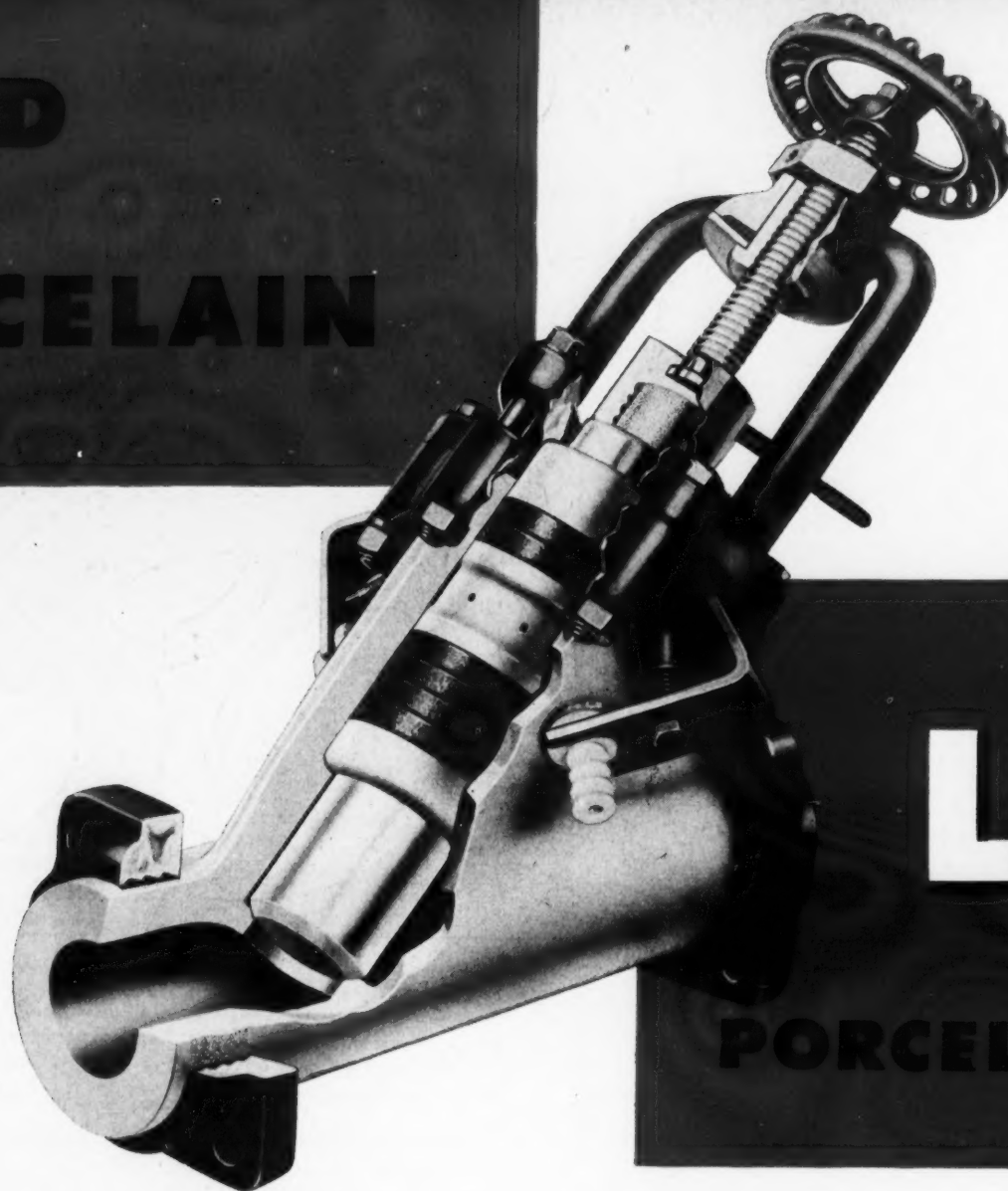
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